TOWN OF SURFSIDE
BUILDING & ZONING DEPARTMENT/ HOURS 9:00AM - 3:00PM
9293 HARDING AVENUE
SURFSIDE, FL 33154
(305)861-4863

Application Number . . . . . 01-00000232 Date 2/07/01
Property Address . . . . . 8777 GB COLLINS AVENUE
PARCEL NUMBER . . - - - /4 /NB2A
FOLIO NUMBER . . . . . .
Tenant nbr, name . . . . . REPAIR BALCONIES
Application description . . . ALTERATIONS AND REPAIRS
Property Zoning . . . . . TOURIST

Owner	Contractor
CHAMPLAIN TOWERS SOUTH	STRUCTURAL CONCRETE SPECIALIST
	BLACKLEDGE, GLENN LEONARD
8777 COLLINS AVENUE	P.O. BOX 15940
SURFSIDE FL 33154	PLANTATION FL 33318
(305)	(305) 865-4740

Structure Information

Construction Type . . . . .
Occupancy Type . . . . . .
Roof Type . . . . . .
Flood Zone . . . . . AE AT 8 FEET
Sign Type . . . . . .
Fence Type . . . . . .

Permit . . . . . ALTERATIONS AND REPAIRS
Additional desc . . CONCRETE RESTORATION
Permit Fee . . . . 2082.00 Plan Check Fee . . .00
Issue Date . . . . 2/07/01 Valuation 50000
Expiration Date . . 8/06/01

Qty	Unit Charge	Per		Extension
1.00	30.0000	EA	ALTERATIONS AND REPAIRS	30.00
171.00	12.0000	EA	ALTERATIONS AND REPAIRS	2052.00

Special Notes and Comments
NO INSPECTION REQUEST WILL BE TAKEN
WITHOUT APPLICATION/PERMIT NUMBER

0094G/1-20-93/AE-8

Other Fees . . . . . COUNTY PERMIT FEE 30.00

Fee summary	Charged	Paid	Credited	Due
Permit Fee Total	2082.00	2082.00	.00	.00
Plan Check Total	.00	.00	.00	.00
Other Fee Total	30.00	30.00	.00	.00
Grand Total	2112.00	2112.00	.00	.00

BUILDING DEPARTMENT CLERK: _____

AUTHORIZED SIGNATURE: Will Pick up 2/07/01

INFORMATION FOR PERMITS ONLY

FOR ALL PERMITS:

This permit is hereby granted to the named Contractor or Builder to perform the described work, as per application filed in this office. This Permit is granted upon the express condition that all facts in the application are true and that the construction complies strictly with the plans and specifications submitted, and in accordance and compliance with the Building Laws of the State of Florida and with all Ordinances of the Town of Surfside, and rules and regulations of the Town Commission of the Town of Surfside. This Permit may be revoked at any time upon the violation of any provisions of said laws, ordinances or rules and regulations, or upon any change in plans and specifications unauthorized by the Town of Surfside.

FOR BUILDING PERMITS:

In consideration of the issuance to me of the foregoing Building Permit, I hereby agree to do the proposed construction in strict conformity with the application and the plans and specifications thereof heretofore by me submitted, and in compliance with all provisions of all Building Laws of the State of Florida, all the Ordinances of the Town of Surfside, and all the rules and regulations of the Town Commission of the Town of Surfside.
NOTICE: In addition to the requirements of this permit, there may be additional restrictions applicable to this property that may be found in the public records of this county, and there may be additional permits required from other governmental entities such as water management districts, state agencies, or federal agencies.

FOR UTILITY / TRENCHING PERMITS:

The issuance of a Permit does not give the Contractor permission to violate deed restrictions and/or homeowners regulation. Please check deed restrictions prior to commencing work.
The work herein described and permitted is to be completed within one year of the date of this permit, on which date this Permit expired, unless otherwise extended.
Notification to the Town of Surfside, Tel. Number 861-4863, shall be given twenty four (24) hours prior to the beginning of construction, or prior to required inspections or test observations.
The above applicant is to provide sufficient lights and danger signals and take all necessary precautions for preventing accidents or injuries to person or property in or about the work herein permitted. This permit is issued subject to the actual work being performed by a Contractor properly qualified by the Engineering Contractors Qualifying Board of Dade County.

The Permittee and/or his subcontractors shall:

1. Submit a schedule of construction anticipating all necessary traffic detours for approval prior to the start of construction.
2. Prevent the creation of any obstructions or conditions that may become dangerous to the traveling public.
3. Maintain usable and safe, unless otherwise approved, all intersections during non-construction hours.
4. Maintain local access to local residents during all stages of construction.
5. Contact all utility companies in the area for field location of their utilities in the area prior to the commencement of construction.
6. Perform all pavement restorations in accordance with Dade County's Public Works Department's Standard Details and Specification, as depicted in the Department's Details and Specifications, as depicted in the Department's Detail R-21.1, latest revision, and when applicable, in accordance with the State of Florida's Department of Transportation requirements regarding utility placement and trenching in State's rights of way.
7. Only backfill under pavement with 1:10 concrete mix placed against undisturbed soil.
8. Provide a bond proportionate to the scope of work, if required at the option of the Town Manager, to ensure proper materials and workmanship in the restoration of public rights of way.
9. Restore all existing public and/or private facilities disturbed or affected by the Contractor to equal or better condition than at the beginning of construction by the Contractor.

TOWN OF SURFSIDE
PERMIT APPLICATION ROUTING SHEET

Date 2/6/01 Process No. 01-232 Application Type Alt + Rep.
Contractor Structural Cons. Spec. Applicant Champion Towers
Property Address 8777 Collins Ave Flood Zone

Contractor's Credentials Review

All items are current: ___Yes ___No (Check all items that are expired)
State Certified:
___State Lic ___Dade City Reg ___Occ Lic ___*WC Ins ___Prop/Liab
Dade County Certified:
___Cert Comp ___Occ Lic ___Mun Lic ___WC Ins ___Prop/Liab ___**State Reg

* If providing only an exemption certificate, a letter is required stating no employees and will be performing work b
** Applicable to certain categories only.

Clerk Initials _____ Date _____ Comments

Division Review

Division	Approved	Date	Denied	Date	Comments
Planning & Zoning					
Structural Eng.					
Building Official		2/7/01			
Mechanical Inspector					
Electrical Inspector					
Plumbing Inspector					
Road/School Impact					
Dade					
Water/Sewer					
Metro-Fire Dept.					
Town Commission					
Public Works					
Landscaping					

Application Review & Fee Calculation

OTHER FEES

Radon Fee	
Dade Cty Comp	30.00
Structural Review	
Landscape Bond	
Curb Cut Bond	
Street Repair Bond	
Sewer Impact Fee	
Photocopies Fee	
Zoning Review Fee	
Temporary /Elect.	

PERMIT FEES

Building / New		Alteration / Repairs	2092.00
Building / Addition		Glass Windows/Door	
Roof		Concrete Slabs	
Paving		Storm Shutters/Panels	
Fence/Wall		Awnings	
Sign / Building		Demolition	
Sign / Electrical		Plumbing	
Pool / Structural		Electrical	
Pool / Piping		Mechanical	
Pool / Electrical		Landscaping	

01-232

TOWN OF SURFSIDE, FLORIDA
APPLICATION FOR BUILDING PERMIT

Application is hereby made for the approval of the detailed statement of the plans and specifications herewith submitted for the building or other structure herein described. This application is made in compliance and conformity with the Building Ordinances of the Town of Surfside, Florida. The approval of this plan or permit shall not be construed as applying to or changing in any way the restrictions contained in any deeds of conveyance. All provisions of the Laws of the State of Florida, all ordinances of the Town of Surfside, and all rules and regulations of the Building Department of the Town of Surfside shall be complied with whether herein specified on plans or not. I understand that separate permits are required for ELECTRICAL, PLUMBING AND MECHANICAL WORK.

DATE: 1/31/2001 PROPERTY OWNER'S NAME: CHAMPLAIN TOWERS SOUTH CONDOMINIUM

JOB ADDRESS: 8777 COLLINS AVE., SURFSIDE, FL 33154

LOT: _____ BLOCK: _____ SUBDIVISION: _____

ARCHITECT/ENGINEER: B.P. TAURINSKI STRUCTURAL ENGINEERS PHONE: 561-997-6141

ADDRESS: 6971 FEDERAL HWY., SUITE 204 CITY: BOCA RATON STATE: FL ZIP: 33487

CONTRACTOR: STRUCTURAL CONCRETE SPECIALISTS, INC. PHONE: 954-525-9773

CO#: _____ QUALIFIER'S NAME: GLENN BLACKLEDGE

ADDRESS: 1532 N.E. 4TH AVENUE CITY: FORT LAUDERDALE STATE: FL ZIP: 33304

DESCRIPTION OF PROPOSED WORK: CONCRETE RESTORATION & PAINTING

TYPE OF WORK:	☐	REMODELING	☐	ADDITION	☑	REPAIRS	
CURRENT USE:	☑	APARTMENT	☐	RESIDENCE	☐	COMMERCIAL	
PROPOSED USE:	☑	APARTMENT	☐	RESIDENCE	☐	COMMERCIAL	

IS THIS PROJECT SUBJECT TO A TOWN OR COUNTY IMPACT FEE: ☐ YES ☐ NO

SQUARE FEET: AS PER QUANTIFICATIONS SHEETS ESTIMATED COST OF IMPROVEMENTS $ 172,000.00

I hereby submit all the plans and specifications for said building. I hereby make application for a Certificate of Occupancy. All notices with reference to the building and its construction may be sent:

P.O. BOX 15940, FT. LAUDERDALE, FL 33318

The undersigned applicant for this building permit does hereby certify that they understand and accept their obligations as an employer of labor under the Florida Workers' Compensation Act, being Section 5966, compiled General laws of Florida, Permanent Supplement, and has complied with the provisions hereof, and will require similar compliance from all contractors and subcontractors employed by them in the work to be performed under this permit; and will post or cause to be posted for inspection on the site of the work such public notice or notices as are required by this

SIGNED: _____ ADDRESS: 1532 N.E. 4TH AVENUE, FT. LAUDERDALE, FL 33304

NOTICE OF COMMENCEMENT

OWNER'S AFFIDAVIT: I certify that all the foregoing is accurate and that all work will be done in compliance with all applicable laws regulating construction and zoning.

WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT.

SIGNATURE OF OWNER: _____ PRINT NAME: NANCY LEVIN

SIGNATURE OF CONTRACTOR: _____ PRINT NAME: GLENN BLACKLEDGE

DATE: 1/30/2001 DATE: 1/31/2001

NOTARY AS TO: OWNER: _____ CONTRACTOR: STRUCTURAL CONCRETE SPECIALISTS, INC.

MY COMMISSION EXPIRES: _____ MY COMMISSION EXPIRES: _____

JULIA E. TOBAR
MY COMMISSION # CC 819376
EXPIRES: July 18, 2003
Bonded Thru Notary Public Underwriters

JULIA E. TOBAR
MY COMMISSION # CC 819376
EXPIRES: July 18, 2003
Bonded Thru Notary Public Underwriters

Job Name: Champlain Towers South

QUANTIFICATIONS SHEET

UNIT #	STUCCO REPAIR	THRU SLAB PARTIAL DEPTH	STRUCTURAL VERTICAL SPALLS	OVERHEAD	CEILING	LOWER DECK	COLUMNS (SM)	TILE
201					3-FT	3-FT		
212						9-FT		
202					8-FT	2FT		
211						1-FT		
203				3-FT		2-FT		
204		10-FT			10-FT			15-FT
208		70-FT		8-FT	2-FT			
209		10-FT		8-FT		3-FT		
301				8-FT		3-FT		
304					18-FT			
303					1.5-FT			
302					8.5-FT			
312					14-FT			
311					4-FT			
310					4-FT			
305					5-FT			
308					10-FT			
309					8-FT			

Job Name: Champlain Towers South

QUANTIFICATIONS SHEET

UNIT #	*STUCCO REPAIR*	*THRU SLAB PARTIAL*	*STRUCTURAL VERTICAL SPALLS*	*OVERHEAD*	*CEILING*	*LOWER DECK*	*COLUMNS (SM)*
405					10-FT		
401					22-FT		
412					24-FT		
411					2-FT		
403		20-FT		8-FT	12-FT		
410					2-FT		
404					12-FT		
406					8-FT		
407					8-FT		
408		80-FT			8-FT		
501				8-FT	18-FT		
502					5-FT		
512		2-FT			7-FT		
511					2-FT		
510					8-FT		
503					4-FT		
504					3-FT		
505					3-FT		
506					8-FT		
508					18-FT		
509					7-FT		

Job Name: Champlain Towers South

QUANTIFICATIONS SHEET

UNIT #	*STUCCO REPAIR*	*THRU SLAB PARTIAL*	*STRUCTURAL VERTICAL SPALLS*	*OVERHEAD*	*CEILING*	*LOWER DECK*	*COLUMNS (SM)*
601		10-FT		5-FT	18-FT		
612		2-FT			2-FT		
602					8-FT		
611					3-FT		
610					7-FT		
603					8-FT		
604					3-FT		
605					4-FT		
608					8-FT		
609					5-FT		
712					12-FT		
702					7-FT		
701					5-FT		
711					10-FT		
710					4-FT		
703					2-FT		
704					4-FT		
705				6-FT	8-FT		
706					8-FT		
707					12-FT		
708					10-FT		
709				4-FT	10-FT		

Job Name: Champlain Towers South

QUANTIFICATIONS SHEET

UNIT #	*STUCCO REPAIR*	*THRU SLAB PARTIAL*	*STRUCTURAL VERTICAL SPALLS*	*OVERHEAD*	*CEILING*	*LOWER DECK*	*COLUMNS (SM)*
801					3-FT		2.5-FT
812					8-FT		
810					1.5-FT		
804					4.5-FT		
805					4-FT		
806					8-FT		
807					8-FT		
808					18-FT		
809					8-FT		
901					7-FT		
912					7.5-FT		
902					1-FT		
911					3-FT		
910					2-FT		
903					4-FT		
905					8-FT		
906					8-FT		
907					8-FT		
908					18-FT		
909					8-FT		

Job Name: Champlain Towers South

QUANTIFICATIONS SHEET

UNIT #	STUCCO REPAIR	THRU SLAB PARTIAL	STRUCTURAL VERTICAL SPALLS	OVERHEAD	CEILING	LOWER DECK	COLUMNS (SM)
1001					3-FT		
1012					15-FT		2.5-FT
1002					4-FT		
1011					5-FT		
1010					2-FT		
1003					5-FT		
1004					2.5-FT		
1005					1-FT		
1007					5-FT		
1008					8-FT		
1009					1-FT		
1101					10-FT		
1112					25-FT		
1111					12-FT		
1102					2-FT		
1110					5-FT		
1104					1-FT		
1105		45-FT			2-FT		
1108					5-FT		
PH-01					8-FT		
PH-12					4-FT		
PH-02					1-FT		
PH-04				2-FT			
PH-08					4-FT		

01-232

CHAMPLAIN TOWERS SOUTH

8777 Collins Ave., Surfside, FL 33154
(305) 865-4740 Fax: (305) 865-7800

January 19, 2001
Town of Surfside
9293 Harding Ave.
Surfside, Florida 33154

Re: Concrete restoration

To Whom It May Concern:
This letter is to acknowledge the balcony concrete repair work at Champlain Towers South.
Structural Concrete Specialists, Inc. will perform the repair work under the supervision of structural engineer B.P. Taurinski, P.E., P.A..

Nancy Levin, President
For the Champlain Towers South
Condominium Association Inc.
(Seal)

The forgoing affidavit was acknowledged before me on this 19th Day of January 2001, by Nancy Levin, President of the Champlain Towers South Condominium Association, Inc..

Signature of Notary Public

Martin Maier
My Commission CC769003
Expires August 20, 2002

Name of Notary Public printed, typed or stamped

Notary Public State of Florida

ToS Con2.doc

TOWN OF SURFSIDE

MUNICIPAL BUILDING
9293 HARDING AVENUE
SURFSIDE, FLORIDA 33154

Telephone: (305) 861-4863
Facsimile: (305) 861-1302

Web Site: www.town.surfside.fl.us
clerk@town.surfside.fl.us

SPECIAL INSPECTOR

DATE: January 11, 2001

ATTN: Building Official

I, the undersigned, a Professional Engineer X, Registered Architect _____, registered in the State of Florida, have been retained by the owners, Champlain Towers South of the property located at: 8777 Collins Avenue, Surfside, Florida to perform all the duties of a Special Inspector, as defined in Section 305.3 of the South Florida Building Code.

This office will be responsible to the Building Official of the Town of Surfside for the inspection of the structural elements of the building, including all excavations, pilings, foundation, all reinforced concrete and structural steel, and will file written weekly reports for the same as to progress, compliance or non-compliance with the plans and the South Florida Building Code. In the event of non-compliance the Building Official shall be notified immediately so that appropriate action can be taken. The pile logs and all concrete test reports will be submitted to the Building Official within one week after their completion.

Upon completion of the structure, I will submit to the Town of Surfside a certificate of compliance with the South Florida Building Code and approved plans.

Engineer's Signature: B. P. Taurinski

LICENSE NUMBER: 33255

Building Permit #: 01-232

Owner/Agent Signature: Nancy Lovin, President

Owner/Agent Name (Printed): NANCY LOVIN

BUILDING DEPARTMENT, Accepted by: _____

Date: _____

MUST BEAR ENGINEER/ARCHITECT ORIGINAL SIGNATURE AND RAISED SEAL!!!!

B. P. Taurinski
1-11-01

B.P. TAURINSKI, P.E., P.A.
STRUCTURAL ENGINEERS
6971 NORTH FEDERAL HIGHWAY, SUITE 204
BOCA RATON, FLORIDA 33487

State of Florida

Board of Professional Engineers

attests that

Bronislaus P P E Taurinski

Is licensed as a Professional Engineer under Chapter 471, Florida Statute.

Expiration Date **February 28, 2001** License Number **33256**

This card is the property of the Florida Board of Professional Engineers and must be returned to the Board in the event of suspension or revocation of license.

Signature

FLORIDA BOARD OF PROFESSIONAL ENGINEERS
1208 Hayes Street
Tallahassee, FL 32301
(850) 521-0500

Florida Building Commission
2555 Shumard Oak Blvd. Tallahassee, Florida 32399-2100 850-487-1824

Be it known that
BRONISLAUS TAURINSKI

Is certified as a Special Inspector of Threshold Buildings pursuant to Section 553.79(5)(c), *Florida Statutes*

No. 269 Fla. Reg. No. P. E. 33255
Exp. 3-31-2002

By

State of Florida

Florida Board of Building Codes and Standards

Be it known that

Bronislaus Peter Laurinski

Having satisfactorily completed the requirements prescribed by the State Board of Building Codes and Standards is certified as

Special Inspector

GIVEN UNDER OUR HANDS AT TALLAHASSEE, FLORIDA THIS 18th DAY OF September NINETEEN HUNDRED Eighty Five

Thomas W. Clark
CHAIRMAN
FLORIDA BOARD OF BUILDING CODES AND STANDARDS

Thomas D. Pelham
SECRETARY
DEPARTMENT OF COMMUNITY AFFAIRS

Certification Number 269

State of Florida

Department of Professional Regulation

Board of Professional Engineers

Whereas Bronislaus P. Taurinski *has shown competency and fitness to practice Professional Engineering and has complied with all requirements of the Board of Professional Engineers; therefore by virtue of the powers vested in said Board by the State of Florida, the Florida State Board of Professional Engineers hereby issues this Certificate to practice Professional Engineering in the State of Florida as provided by the laws of the State and subject to the powers of revocation as vested in said Board.*

Chairman of the Board

Vice Chairman of the Board

January 28, 1983
Date

Governor

33255
License Number

TOWN OF SURFSIDE

MUNICIPAL BUILDING
9293 HARDING AVENUE
SURFSIDE, FLORIDA 33154

Telephone: (305) 861-4863
Facsimile: (305) 861-1302

Web Site: www.town.surfside.fl.us
tclerk@town.surfside.fl.us

SPECIAL INSPECTOR

DATE: January 11, 2001

ATTN: Building Official

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Upon completion of the structure, I will submit to the Town of Surfside a certificate of compliance with the South Florida Building Code and approved plans.

Engineer's Signature: B. P. Tauriski

LICENSE NUMBER: 33255

Building Permit #: 01-232

Owner/Agent Signature: Nancy Levin President

Owner/Agent Name (Printed): NANCY LEVIN

BUILDING DEPARTMENT, Accepted by: _____

Date: _____

MUST BEAR ENGINEER/ARCHITECT ORIGINAL SIGNATURE AND RAISED SEAL!!!!

B.P. Tauriski
1-11-01

B.P. TAURINSKI, P.E., P.A.
STRUCTURAL ENGINEERS
6971 NORTH FEDERAL HIGHWAY, SUITE 204
BOCA RATON, FLORIDA 33487

State of Florida

Board of Professional Engineers

attests that

Bronislaus P P E Taurinski

is licensed as a Professional Engineer under Chapter 471, Florida Statute.

Expiration Date **February 28, 2001** License Number **33255**

This card is the property of the Florida Board of Professional Engineers and must be returned to the Board in the event of suspension or revocation of license.

Signature

FLORIDA BOARD OF PROFESSIONAL ENGINEERS
1208 Hayes Street
Tallahassee, FL 32301
(850) 521-0500

Florida Building Commission
2555 Shumard Oak Blvd. Tallahassee, Florida 32399-2100 850-487-1824

Be it known that
BRONISLAUS TAURINSKI

Is certified as a Special Inspector of Threshold Buildings pursuant to Section 553.79(5)(c), *Florida Statutes*

No. 269 Fla. Reg. No. P. E. 33255
Exp. 3-31-2002

By

State of Florida

Florida Board of Building Codes and Standards

Be it known that

Bronislaus Peter Taurinski

Having satisfactorily completed the requirements prescribed by the State Board of Building Codes and Standards, is certified as

Special Inspector

GIVEN UNDER OUR HANDS AT TALLAHASSEE, FLORIDA THIS

18th DAY OF September NINETEEN HUNDRED Eighty five

CHAIRMAN
FLORIDA BOARD OF BUILDING CODES AND STANDARDS

Thomas D. Pelham

SECRETARY
DEPARTMENT OF COMMUNITY AFFAIRS

Certification Number 269

State of Florida

Department of Professional Regulation

Board of Professional Engineers

Whereas Bronislaus P. Taurinski *has shown competency and fitness to practice Professional Engineering and has complied with all requirements of the Board of Professional Engineers; therefore by virtue of the powers vested in said Board by the State of Florida, the Florida State Board of Professional Engineers hereby issues this Certificate to practice Professional Engineering in the State of Florida as provided by the laws of the State and subject to the powers of revocation as vested in said Board.*

Eugene V. Beckamps
Chairman of the Board

Allen H. Beckmeyer
Vice Chairman of the Board

Date: January 28, 1983

Governor

License Number: 33255

Champlain Towers South Condominium

8777 Collins Avenue
Surfside, Florida 33154

September 2000

BY:
B.P. TAURINSKI, P. E. , P. A.
6971 FEDERAL HIGHWAY, SUITE 204
BOCA RATON, FL. 33487
561-997-6141

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B. P. Taurinski STRUCTURAL ENGINEERS

6971 N. FEDERAL HIGHWAY, SUITE 204
BOCA RATON, FLORIDA 33487
FAX: (561) 997-7785
(561) 997-6141

B.P.T.
9-11-00

CHAMPLAIN TOWERS SOUTH CONDOMINIUM
8777 Collins Avenue
Surfside, Florida 33154

Unit Balconies

September 2000

SCOPE OF WORK

1. Repair damaged concrete and steel on slab surfaces, walls, columns, ceilings and slab edges. Regrout all loose railing posts.

2. Remove and reinstall hurricane shutters as required to properly repair or waterproof the concrete.

3. The top surfaces of bare concrete slabs shall be ground down to remove all carpet glue, coatings or other finishes prior to applying the waterproof deck coating system. Remove delaminated tile surfaces that have been marked for removal by Engineer. Detail all cracks as per manufacturer's recommendations.

4. Install a one inch cant bead of urethane sealant at the junction of all horizontal and vertical surfaces.

5. Apply Flextight Waterproof Membrane System with 2 coats of Tuf-Trac to all bare concrete balcony floors.

6. The Contractor is to provide the Engineer with 4 concrete cores for the testing laboratory. The testing laboratory report is to provide the compressive strength of the existing concrete and amount of chlorides in the existing concrete.

7. Repair stressed/delaminated stucco as marked by the Engineer.

Notice to Unit Owners Regarding Tiled Surfaces

During the restoration of unit balconies, tile surfaces may be found delaminated or "hollow" when checked with a sounding device. If so, one or more of the following conditions may exist:

1. The tile was installed on a surface where the thinset was unable to bond (carpet glue, tiles, etc.).

2. The tile was installed with an insufficient thickness of thinset.

3. Deteriorated concrete (spalls) are beginning to push the tiles upwards, causing cracking and heaving.

It is not possible to determine which of the three conditions exist without removing, and possibly damaging the tiles. However, if the tile surface shows signs of cracking and heaving, then this warrants the removal of those areas to check the concrete surface. This means that tiles will be destroyed, making them unavailable for reinstallation.

When deteriorated concrete is detected, it is then necessary to remove the rest of the tiles. This allows the engineer to inspect the balcony surface completely and enables the contractor to repair and waterproof the balcony completely.

Tile is not a waterproof surface. If the tiles are not removed completely when damage has been detected, then those hidden deteriorated areas will continue to accelerate. This may incur additional costs to repair the balcony and still result in the removal of the tiled surface at a later date.

In relation to a large balcony restoration project, a board may find the price of removing all balconies' tiled surface cost prohibitive and limit repairs and waterproofing to painted, carpeted, and un-tiled balconies. However, when the engineer detects cracking and heaving, or other questionable characteristics, then the engineer must consider further investigation.

In conclusion, the complete investigation of a balcony surface and subsequent repairs and waterproofing out weighs the importance of any balcony's tiled surface in terms of cost and safety. Therefore, **the engineer reserves the right to remove tiled surfaces completely when deteriorated concrete is suspected or when delamination, cracking, or heaving has taken place. The engineer is not responsible for the reinstallation of balcony tiles, nor is the engineer responsible for the damaging of tiles during the investigation of structural damage.**

B. P. Taurinski Structural Engineers
561-997-6141
June 2000

CONCRETE REHABILITATION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Furnish all necessary materials, labor and equipment required to:

1. Repair all cracked and spalled concrete at the top, bottom and edge surfaces of the concrete slabs. Regrout all loose railing post.

2. Completely remove coatings or any other finish from the top surface of damaged balcony slabs. Carpet glue and coatings shall be completely removed. Delaminated tile surfaces shall be removed completely.

3. Remove and re-install hurricane shutters as required to properly repair or waterproof the concrete slabs.

4. Repair all deteriorated concrete and steel throughout the condominium per ICRI Standards and the appropriate manufacturer's recommendations.

5. Properly prepare concrete decks for waterproof membrane system.

6. Apply a waterproof membrane system to bare concrete decks.

1.02 UNRELATED WORK

A. Electrical conduit replacement or other electrical work on wiring buried in the concrete members.

B. The work identified in Sections 1.02 (A) shall not be performed by this Contractor unless specifically set forth in the contract or by approved change order.

NOTE: THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR DETAILING AND WATERPROOFING ALL PROTRUSIONS THROUGH THE CONCRETE DECK AS IT RELATES TO SECTIONS 1.02 (A).

1.03 QUALITY ASSURANCE

A. Manufacturer: Company specializing in type of materials specified, with not less than five years of documented experience.

B. Contractor: The Contractor shall meet all of the following requirements:

1. The Contractor shall be a "Pre-qualified Contractor" of the Manufacturer for the materials used. The Contractor shall submit a letter from the Manufacturer stating such approval , including a letter of intent to warrant said project.

2. The Contractor shall have a minimum of three years of experience in performing repair work similar to that specified herein.

3. The Contractor shall be a State-Certified General Contractor.

4. The Contractor shall submit a list of five projects in which repair work similar to that specified herein was successfully completed. The list shall contain the following information for each project: project name and location, owner of project, contact person and telephone number, brief description and date of completion.

1.04 SUBMITTALS

A. The Contractor shall deliver the required submittals to the Owner. Submittals shall be made promptly and in such a sequence as to cause no delay in the work.

Owner: Champlain Towers South Condominium Association
8777 Collins Avenue
Surfside, Florida 33154
Martin Maier, Property Manager

Engineer: B. P. Taurinski Structural Engineers
6971 North Federal Highway, Suite 204
Boca Raton, Florida 33487
Brownie Taurinski, P.E., P.A.

B. The Contractor shall submit the following in duplicate:

1. Documentation that he meets the qualifications as specified in Section 1.03 (B).

2. Letter from Manufacturer and sample warranty as specified in Section 4.01 (A).

3. Certifications of Insurance as specified in Section 1.07 (E).

4. Hold Harmless Agreement as specified in Section 1.07 (F).

5. Schedule of work, including commencement and completion dates, as specified in Section 1.07 (K)

1.05 MATERIAL DELIVERY, HANDLING AND STORAGE

A. Materials shall be delivered in the Manufacturer's undamaged, unopened containers. Each container shall be clearly marked with the following:

1. Product name.
2. Manufacturer's name.
3. Batch number
4. Component designation ("A" or "B")
5. Ratio of component mixtures.

B. Provide equipment and personnel to handle the materials by methods which prevent damage.

C. Promptly inspect shipments to assure that materials comply with requirements, quantities are correct and materials are undamaged.

D. The Contractor shall be responsible for all materials furnished by him/her, and he/she shall replace, at his/her own expense, all such material that is found to be defective in manufacturing or that has become damaged in handling.

E. Store materials in accordance with the Manufacturer's instructions with seals and labels intact and legible. Maintain temperatures within the required ranges.

F. Store materials only in locations designated by Owner.

1.06 JOB CONDITIONS

A. The Contractor shall visit the site and examine the condition of the surfaces, which are to be repaired. The Contractor shall follow the Manufacturer's recommendations with regard to the various moisture and temperature limitations of the materials.

B. The Contractor shall arrange with the Owner to have all automobiles moved from the immediate work area and/or adequately protected from damage during the work.

C. The Contractor shall arrange with the Owner to have all work areas closed off to prevent pedestrian traffic during the work.

D. The Contractor shall arrange with the Owner for the times of day and days of the week during which the work can take place.

E. The Contractor shall provide a dumpsite for the removal of all debris and for removal of its contents.

F. The contractor shall provide portable toilets for use of his employees.

G. The Contractor shall provide a full-time, on-site supervisor for the duration of the work.

1.07 GENERAL CONDITIONS

A. The Contractor shall provide all required labor, materials, necessary equipment, supervision, insurance and permits required to complete the work as herein specified.

B. The Contractor shall obtain all necessary permits as required by the Municipal.

C. The Contractor shall comply with all fire and safety regulations and shall supply workmen with safety goggles, gloves and masks as required for protection during specific phases of the work.

D. The Contractor shall utilize adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods needed for proper performance of the work.

E. The Contractor shall provide Certificates of Insurance to the Owner and maintain the following coverage's indemnifying the Owner to the stated limits where applicable.

1. Workmen's Compensation: Statutory Limits.

2. Comprehensive General Liability Insurance including Contractual and Broad form Liability:

Bodily Injury -	$ 1,000,000.00 Each Occurrence $ 1,000,000.00 Aggregate
Property Damage -	$ 1,000,000.00 Each Occurrence $ 1,000,000.00 Aggregate

3. Commercial Auto Liability Insurance:

Bodily Injury -	$ 1,000,000.00 Each Occurrence $ 1,000,000.00 Aggregate
Property Damage -	$ 1,000,000.00 Each Occurrence $ 1,000,000.00 Aggregate

4. Umbrella Liability Insurance:

Bodily Injury -	$ 2,000,000.00 Each Occurrence $ 2,000,000.00 Aggregate
Property Damage -	$ 2,000,000.00 Each Occurrence $ 2,000,000.00 Aggregate

F. The Contractor shall notify his insurance carrier to provide to the Owner within seven (7) days, written notice of cancellation of any or all of the above coverage's. In addition, the Contractor shall execute a Hold Harmless Agreement, holding the Owners, their respective officers, directors, members, employees and designated inspectors harmless from legal action, including attorney's fees and expenses, which may arise out of the performance of the work.

G. The Contractor shall protect and safeguard from harm all real and personal properties of the individual apartment owners and common elements of the Owner adjoining the work. Drop clothes or plastic wrapping or covers shall be utilized to protect adjoining surface as may be required.

H. The Contractor shall arrange with the Owner for working space, space for storage of materials, parking for workmen and access to the areas where the work for the Contractor is to be performed.

I. The Contractor shall perform and install the work in strict accordance with these Specifications and the Manufacturer's recommendations and shall specifically request the Manufacturer's representative to review bi-weekly or as required, those portions of the work-in-progress; prior to, during, and after final installation, in order that the Warranties can be issued properly.

J. The Owner shall make power and water available, without charge, for reasonable use of the Contractor.

K. The Contractor, once having started the work, shall continuously, and expeditiously proceed to complete the work as quickly as possible. The Contractor shall submit a time schedule to the work indicating dates of commencement and completion.

L. Should any unforeseen conditions be found during the course of the work, immediately notify the Owner, Engineer, and a representative of the Manufacturer in order to determine remedial measures necessary to correct the problem area so that the work may continue and schedules are maintained within a reasonable time.

M. At the end of each work day all equipment, staging, scaffold, shores, machinery, sealants, epoxy materials, cements, sand reinforcing bars, etc. shall be secured and/or stored. All materials stored in containers shall be properly closed and sealed as necessary.

N. The Contractor shall maintain the material storage/work area clean; removing from the site daily flammable cloths and discarded materials, which could support combustion and least weekly, remove empty drums, containers, bucket, boxes and bags. The Contractor shall supply at least one, five-pound Co2, fire extinguisher for quick access.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Polymer modified Portland cement mortar for patching 3/4" depth horizontal surfaces: Sonopatch 100 or Sonocrete Patch manufactured by Sonneborn Corporation.

B. Polymer modified Portland cement mortar for patching vertical and overhead surfaces: Gel Patch by Sonneborn Corporation.

C. Repair concrete for repairing large, greater than 3/4" to full depth, horizontal slab surfaces: Sonogrout 10K manufactured by Sonneborn Corporation mixed with 15 lbs. of washed graded, saturated surface dry 1/4" to 3/8" pea gravel.

D. Anti-corrosion protective coating for reinforcing bars: Sonoprep manufactured by Sonneborn Corporation.

E. Bonding agent for bonding new plastic concrete to existing hardened concrete: EpoGrip or Sonoprep manufactured by Sonneborn Corporation.

F. Epoxy adhesive for grouting replacement reinforcing bars: Sikadur 32, Hi-Mod manufactured by Sika Corporation.

G. Epoxy adhesive for pressure-injected crack repair: EpoFil manufactured by Sonneborn Corporation.

H. Epoxy adhesive for crack repair: EpoGel manufactured by Sonneborn Corporation.

I. Reinforcing bars: Deformed bars, ASTM A615, grade 60.

J. Repair stucco: Sonopatch 100 mixed with a dilution of Acryl 60 bonding agent manufactured by Sonneborn Corporation.

K. Balcony Deck coating: Flextight with 2 coats of Tuff Track Waterproof Membrane by Sonneborn Corporation.

L. Grout for aluminum railing posts: Sonopost manufactured by Sonneborn Corporation.

M. Sealant for door, windows and caulking exterior joints: NP-1 manufactured by Sonneborn Corporation.

N. Concrete: Rinker (#1177769) 5000 psi in 28 days – Pearock pumpmix with HRWR and corrosion inhibitor, w/c = 0.40 max.

O. Elastomeric Sealants

1. Non traffic joints: Sonolastic NP-1 or Sonolastic NP-2 manufactured by Sonneborn Corporation.

2. Horizontal joints: Sonolastic SL-1 or Sonolastic SL-2 manufactured by Sonneborn Corporation.

P. Backer-Rod

1. Horizontal floor joints: Sonofoam closed-cell backer-rod or Sonofex by Sonneborn Corporation .

2. Vertical joints: Sonofoam soft backer -rod by Sonneborn Corporation.

Q. Primers: #770, #772, and #733 by Sonneborn Corporation.

2.02 ACCEPTABLE MANUFACTURERS

A. It is the intent of these Specifications to obtain a warranty from the material Manufacturer. Therefore, the Contractor shall use products from a single manufacturer to the greatest extent possible and shall obtain prior, written authorization from the primary material manufacturer for use of any secondary materials.

B. Materials manufactured by Sonneborn have been specified and set the standard for the concrete repair products to be used. Like products from another manufacturer, such as Sto, Tamms, or Sika Corporation, can be used with prior, written authorization from the Engineer.

2.03 EQUIPMENT

A. All polymer-modified portland cement mortar, repair concrete, repair stucco and coating mixing equipment shall be of a type, capacity, and mechanical condition suitable for doing the work and acceptable to the material Manufacture.

B. The equipment used to inject the epoxy shall be acceptable to the epoxy Manufacturer and shall conform to all of the following:

1. Capacity to automatically proportion the epoxy materials within the ratio mix tolerances set by the epoxy Manufacturer.

2. Capacity to automatically mix the epoxy materials completely in line. Batch mixing will not be permitted.

3. Capacity to inject the epoxy adhesive under controlled variable pressures.

PART 3 - EXECUTION

3.01 INSPECTION

A. The Contractor, Owner and Engineer shall inspect and sound the areas involved to determine the extent of work involved.

B. An approximation of the magnitude of the repair quantities has been provided to assist the contractor in bidding the work. However, these repair quantities should not be relied upon as accurately reflecting the work to be performed.

3.02 PREPARATION

A. The preparation required for the repairs shall be performed in accordance with the specifications herein described and in accordance with the Manufacturer's recommendations.

B. Document the condition of each area where repairs will be conducted, including such items as railings, screens, doors, etc. A copy of this condition report shall be forwarded to the Owner prior to the repairs so as to avoid potential damage claims.

C. The glass at the doors and windows of the repair areas shall be protected from damage during demolition and surface preparation with plywood sheets.

D. Apply duct tape over all openings at the doors and windows at the repair areas. The duct tape shall be applied at the perimeter frame and at the meeting stiles.

E. Remove coating or any other finishes from the top surface of the unit balcony slabs to make repairs.

F. Remove and reinstall bottom track of hurricane shutter track when required to facilitate structural repairs.

G. Prepare existing concrete slabs as per manufacturer's recommendations prior to waterproofing decks.

H. The general contractor shall be responsible for the design and installation of all shoring requirements.

3.03 MORTAR PATCHING/CONCRETE REPAIR

1. Areas of deteriorated and unsound concrete, as determined during the inspection, shall be removed as follows:

a. The unsound concrete in these areas shall be removed by chipping hammers or other mechanical equipment as approved by the Engineer.

b. Removal of concrete shall extend 2" - 4" beyond the outer boundary mark of unsound concrete.

c. Where possible, the areas removed shall be rectangular shaped.

d. The edges of the patch area shall be perpendicular or slightly undercut between 1/4" and 1/2" deep. This shall be accomplished by saw cutting or by using chipping hammers. Feather edges will **NOT** be permitted.

e. Concrete shall be removed completely around exposed corroded reinforcing steel such that a 3/4" clearance from the existing concrete is obtained.

f. Removal of concrete around and beneath reinforcing steel shall be performed by using chipping hammers.

g. During the removal process, care shall be exercised to avoid cracking and otherwise damaging the surrounding sound concrete.

2. Following the removal of deteriorated and unsound concrete and prior to cleaning the patch area, the Contractor shall remove all loose concrete from the work area and leave said area broom clean.

3. The patch area shall be thoroughly cleaned by sandblasting to accomplish the following:

    a. Removal of all remaining loose and unsound concrete and all dirt, debris and other contaminants, which may impair adhesion of the repair, mortar.

    b. Removal of all loose rust, scale and unsound concrete from exposed reinforcing steel.

4. Apply a bonding agent to the existing hardened concrete surfaces against which the new mortar/concrete is to be placed.

    a. Pre-wet surfaces to saturated surface dry condition.

    b. Apply bonding agent with a stiff bristle brush or "hopper type" spray equipment.

5. The top surfaces of the balcony surfaces shall be prepared in accordance with the waterproof deck coating system Manufacture's recommendations.

3.04 REINFORCING STEEL

A. Reinforcing steel which has lost more than 25% of its original area at any given point along its length shall be repaired as required by the Engineer and/or as follows:

1. Supplement the existing deteriorated reinforcing steel with new steel of equivalent size.

2. Remove deteriorated reinforcing steel and replace it with new steel of equivalent size.

B. All supplemental reinforcing steel shall be placed following the cleaning of the patch area and shall be securely tied to prevent displacement during the placement of the mortar/concrete.

C. Reinforcing steel removed during the removal of concrete members shall be replaced on a one-for-one basis.

D. Where new bars are spliced to existing bars, the lap splice shall be minimum of 30 bar dias.

E. Where bars are required to be grouted, minimum eight (8) inch deep holes shall be drilled into the sound concrete to grout the bars. New bars shall be grouted with epoxy adhesive.

F. Coat all exposed reinforcing bars with a brush or spray applied, anti-corrosion protective coating.

3.05 INSTALLATION OF REPAIR MORTAR

A. Patch concrete slab, wall or column, restoring to original shape, with a polymer-modified cement mortar. Utilize forms as necessary to provide true vertical and horizontal surfaces. Forms shall be used at the vertical edges of all slabs, walls and columns unless directed otherwise by the Engineer.

B. Mix polymer-modified portland cement mortar in strict accordance with the Manufacturer's instructions.

C. At the time of application, the substrate should be saturated surface dry with no standing water. Mortar must be scrubbed into substrate filling all pores and voids. While the scrub coat is still plastic, force material against edge of repair, working toward center. After filling, consolidate, then screed. Allow mortar to set to desired stiffness. Then finish with trowel for smooth surface. Areas where the depth of the repair to sound concrete is greater than 3/4" , repair will be made in lifts of 3/4" maximum thickness or extended with gravel. To full depth of repair, see Section 2.01 (C).

3.06 INSTALLATION OF REPAIR CONCRETE

A. Forms shall be used at the vertical edge of all slabs, walls and columns unless directed otherwise by the Engineer.

B. Install horizontal forms flush with underside of existing slab. Install vertical forms flush with outboard edge of existing slab, wall, column or as required to provide a minimum of 1-1/2 inches of concrete cover for existing reinforcing bars. Forms shall be adequately constructed and supported to prevent sagging, bulging etc.

C. Forms shall be thoroughly cleaned to remove all debris and foreign matter prior to concrete pour.

D. The repair concrete shall be poured or pumped into the forms and shall be rodded or vibrated as required to completely fill repair area.

E. The repair concrete shall be struck off flush with the top of the existing slab and shall be trowel finished to receive the decorative/protective finish.

F. Remove the forms after the repair concrete has gained adequate strength.

3.07 INSTALLATION OF PEDESTRIAN DECK COATING SYSTEM

A. A preconstruction meeting shall be held with the Owner, Engineer, Contractor and Manufacturer in attendance to discuss the deck preparation and coating installation.

B. Sample area shall provided for deck surface preparation and pedestrian deck coating application. Sample shall be of adequate size to objectively determine the level of quality, color and texture of the deck coating.

C. All concrete surface to be waterproofed shall be prepared by a method approved by the Engineer and Manufacturer. The concrete surface shall be free of all latency, loose mortar, oil curing compounds, previously applied coatings, and all other contaminants.

D. The deck preparation method shall not damage the surface of the concrete slab.

E. Following cleaning of the deck surface, all damaged areas of the concrete deck surface shall be "flash patched" in accordance with the Manufacturer's recommendations.

F. Repair all cracks in the deck surface and install a one inch cant bead of urethane sealant at the junction of all horizontal and vertical surfaces in accordance with the Manufacturer's recommendations.

G. Apply the Flextight waterproof deck coating system with 2 coats of Tuf-Trac in accordance with the Manufacturer's recommendations.

H. New tile installation: Apply Flextight Deck Coating prior to applying tile grout.

a. Tile shall be set in 3/8 inch (min.) grout.

3.08 RESTORE STUCCO FINISH

A. Dampen repair area. Restore stucco finish. Apply as two-coat work: (1) scratch and brown coat, (2) finish coat. Repair shall match adjoining stucco texture as closely as possible.

B. Apply the stucco to the repair surfaces as necessary to build out repair areas to match adjacent surfaces.

3.09 CLEAN-UP

A. The Contractor shall clean surface areas of excess epoxy and cementitious materials and shall remove the injection ports by grinding or other appropriate methods. No epoxy materials or injection ports shall extend beyond the plane of the surfaces of the existing concrete.

B. Remove all excess coatings, sealants, etc. from all areas no intended for same.

C. Remove excess materials and debris from jobsite. Leave work and storage areas in as clean a condition as when Contractor first arrived at jobsite.

D. Contractor shall replace all sod and plants damaged during the progress of the work.

E. Contractor shall replace or repair any portions of the buildings or grounds damaged by the work.

PART 4 - WARRANTY

4.01 WARRANTY

A. Manufacturer and Contractor shall jointly and severally agree to warranty the repair work against failure due to materials or workmanship for the period of the warranty. Contractor shall provide a letter from the Manufacturer prior to commencement of the work indicating their willingness to provide such a warranty. Contractor shall provide sample of warranty prior to commencement of work.

B. Separate warranties shall be provided for the concrete repair work and the waterproofing coating systems.

C. Not withstanding anything set forth in the Manufacturer's Warranties to the contrary, those items specifically covered by the Manufacturer's Warranties shall in no way be deemed to limit Contractor's warranty herein and are in addition to and not in lieu of the Contractor's warranty. This is not in lieu of but is in addition to any other warranties, express or implied, which may be provided by law.

D. The period of the warranty shall be five (5) years from the date of Completion.

PART 5 - BID PROPOSAL

5.01 BID PROPOSAL FORMAT

A. Remove finishes from top surfaces of slabs.

1. Unit Cost: _____ per sq. ft. of coating removal.

2. Unit Cost: _____ per sq. ft. of carpet and glue removal.

3. Unit Cost: _____ per sq. ft. for tile and thinset removal.

B. Repair the deteriorated concrete and corroded reinforcing bars on the top surfaces of the slabs. *(Horizontal repairs – 3 inch depth.)*

1. Unit Cost: _____ per sq. ft. of repair area where the repair is NOT full depth of the slab.

2. Unit Cost: _____ per sq. ft. of repair area where the repair IS full depth of the slab.

C. Repair the deteriorated concrete and corroded reinforcing bars at the walls and columns. *(Vertical repairs – 3 inch depth.)*

1. Unit Cost: _____ per sq. ft. of repair area.

D. Repair the deteriorated concrete and corroded reinforcing bars on the bottom surface of the slabs. *(Overhead repairs – 3 inch depth.)*

1. Unit Cost: _____ per sq. ft. of repair area.

E. Repair the deteriorated concrete and corroded reinforcing bars at the edges of the slabs. *(Edge repairs – Full Depth.)*

1. Unit Cost:_____ per lin. ft. of repair area where repair extends eight inches or less into the slab. *(Note: Repair extending more than eight into the slab will be considered horizontal repair.)*

F. Cutting of exposed re-bar ends.

1. Unit Cost: _____ per re-bar end.

G. Repair of concrete cracks.

1. Unit Cost: _____ per lin. ft. by pressure injected epoxy adhesive.

2. Unit Cost: _____ per lin. ft. by rout and caulk.

H. Application of Flextight with 2 coats of Tuff Track to Balcony Slabs.

1. Unit Cost: _____ per sq. ft.

I. Regrouting of railing post.

1. Unit Cost: _____ per post.

J. Unit cost for repair of delaminated stucco.

1. Unit Cost: _____ per sq. ft.

K. Cost for removal and re-installation of hurricane shutters.

1. Unit Cost: _____ per lin. ft.

L. Cost for removal and re-installation of bottom hurricane shutter track only.

1. Unit Cost: _____ per lin. ft.

M. Cost for installation and removal of dust walls.

1. Glass Sliding Door _____ per lin. ft.

N. Project mobilization and demobilization.

1. Total Cost: _____

5.02 UNIT PRICE FOR PUMP MIX CONCRETE

Perform the concrete repairs using the pump-mix concrete set forth in Section 2.01 (N)

AA. Repair the deteriorated concrete and corroded reinforcing bars on the top surfaces of the slabs. *(Horizontal repairs.)*

1. Unit Cost: _____ per sq. ft. of repair area where the repair is **NOT** full depth of the slab.

2. Unit Cost: _____ per sq. ft. of repair area where the repair **IS** full depth of the slab.

BB. Repair the deteriorated concrete and corroded reinforcing bars at the edges of the slab. *(Edge repairs – Full Depth of the Slab's Edge.)*

1. Unit Cost: _____ per lin. ft. of repair area where repair extends eight inches or less into the slab. *(Note: Repairs extending more than eight inches into the slab will be considered horizontal repairs.)*

CC. Repair the deteriorated concrete and corroded reinforcing bars at the walls and columns. *(Vertical repairs)*

1. Unit Cost: _____ per sq. ft. of repair area.

5.03 BID PROPOSAL SUBMITTAL

A. The sealed bid proposal shall be delivered to, **Champlain Towers South Condominium Association's** office no later than **2:00 p.m. on** Oct. 27 **, 2000.** Include a 2nd copy for the Engineer's review.

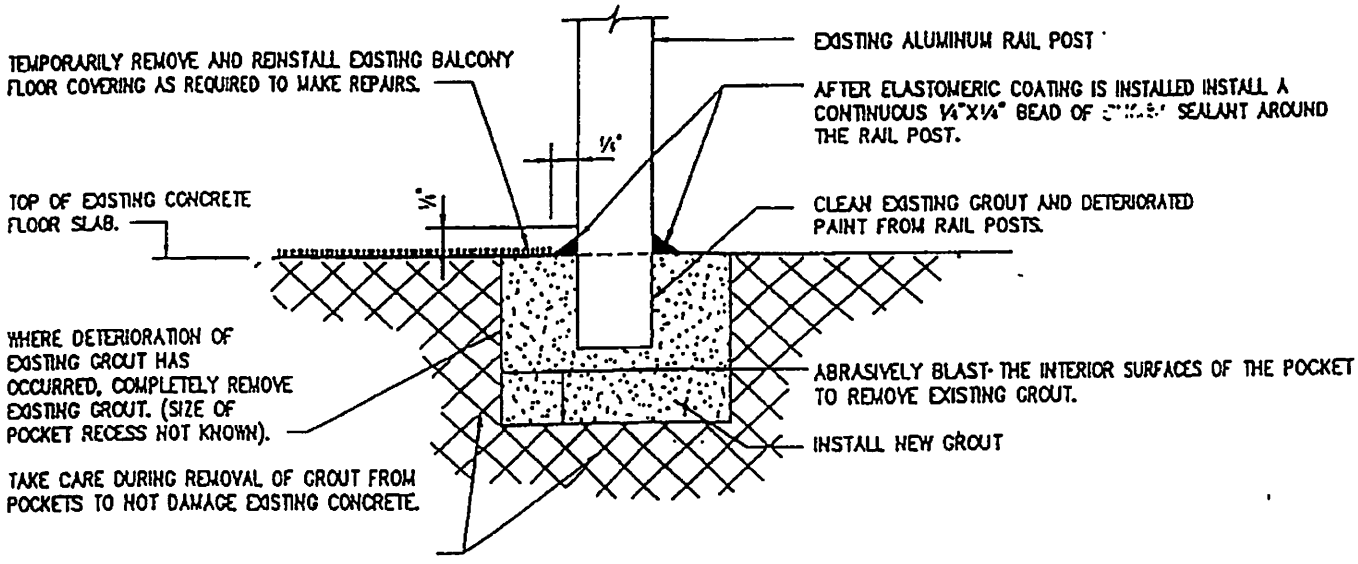
B. The bid proposal shall include the submittals requested in Section 1.04 (B).

C. The Owner reserves the right to accept or reject any bid proposal or to rebid the work for whatever reasons he deems appropriate.

B. P. Taurinski

STRUCTURAL ENGINEERS

6971 N. FEDERAL HIGHWAY, SUITE 204
BOCA RATON, FLORIDA 33487
FAX: (561) 997-7785
(561) 997-6141



REPAIR OF RAIL POST POCKETS IN CONCRETE FLOOR SLABS

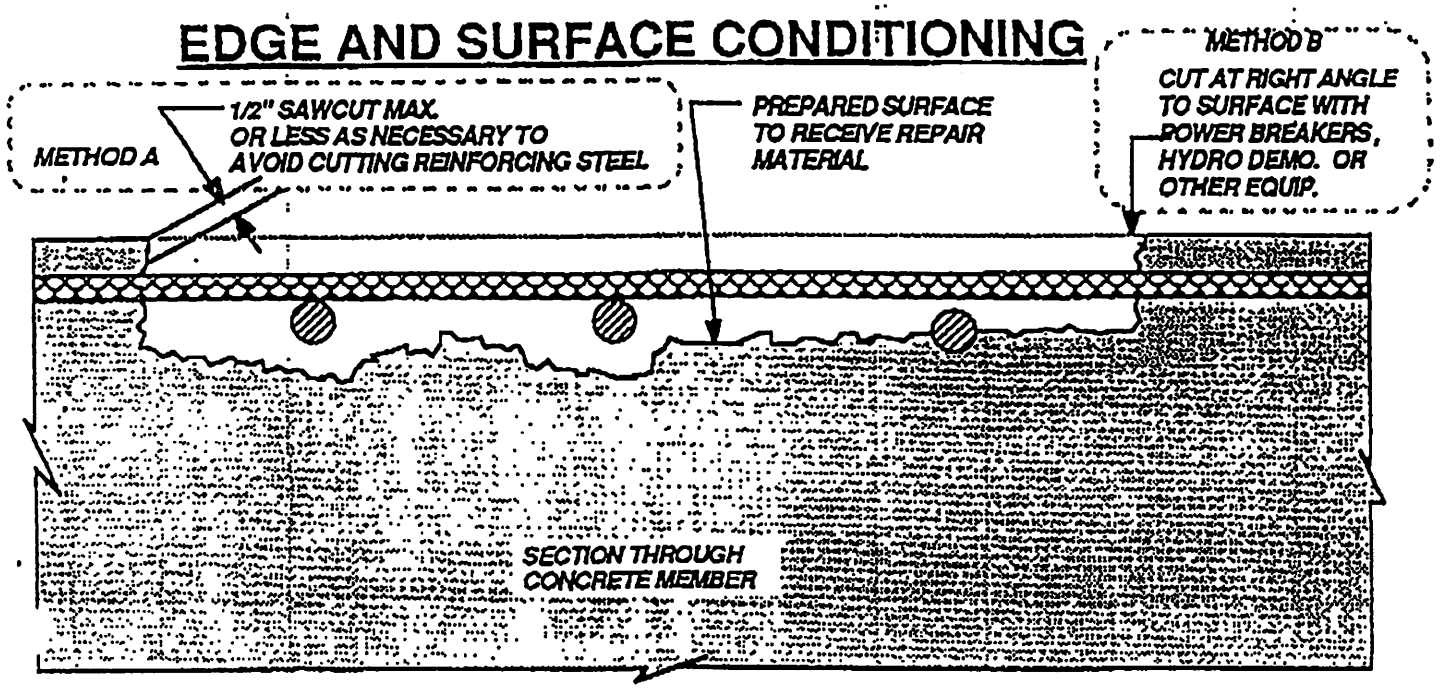
B. P. Taurinski

STRUCTURAL ENGINEERS

6971 N. FEDERAL HIGHWAY, SUITE 204
BOCA RATON, FLORIDA 33487

FAX: (561) 997-7785
(561) 997-6141

EDGE AND SURFACE CONDITIONING

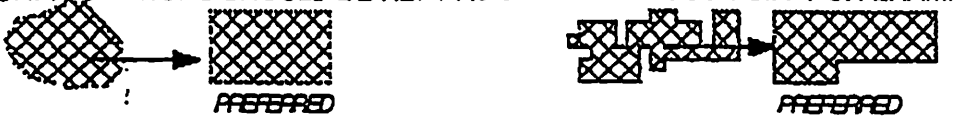


APPLICABLE TO HYDRODEMOLITION, HYDROMILLING, PNEUMATIC, HYDRAULIC AND ELECTRIC BREAKERS
APPLICABLE TO HORIZONTAL, VERTICAL AND OVERHEAD LOCATIONS

CAUTION! BEFORE STARTING REMOVALS, REVIEW EFFECT OF REMOVALS ON STRUCTURAL INTEGRITY. PROVIDE SHORING OF MEMBER AS NECESSARY. PARTICULAR CARE SHALL BE EXERCISED AT SLAB/BEAM CONNECTIONS TO COLUMNS.

1) REMOVE DELAMINATED CONCRETE, UNDERCUT REINFORCING STEEL (REFER TO REINFORCING STEEL UNDERCUTTING GUIDELINE), REMOVE ADDITIONAL CONCRETE AS REQUIRED TO PROVIDE MINIMUM REQUIRED THICKNESS OF REPAIR MATERIAL.

2) AT EDGE LOCATIONS PROVIDE EITHER METHOD A OR METHOD B RIGHT ANGLE CUTS. AVOID FEATHER EDGES. FOR SHOTCRETE REPAIRS REFER TO ACI 506 EDGE PREPARATION GUIDELINES PATCH CONFIGURATIONS SHOULD BE KEPT AS SIMPLE AS POSSIBLE. FOR EXAMPLE:.



3) AFTER REMOVALS AND EDGE CONDITIONING ARE COMPLETE, REMOVE BOND INHIBITING MATERIALS (DIRT, CONCRETE SLURRY, LOOSELY BONDED AGGREGATES) BY ABRASIVE BLASTING OR HIGH PRESSURE WATERBLASTING WITH OR WITHOUT ABRASIVE. CHECK THE SURFACES AFTER CLEANING TO INSURE THAT SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGATE, OR THAT ADDITIONAL DELAMINATIONS ARE NOT PRESENT.

4) IF HYDRODEMOLITION IS USED, CEMENT AND PARTICULATE SLURRY MUST BE REMOVED FROM THE PREPARED SURFACES BEFORE SLURRY HARDENS.

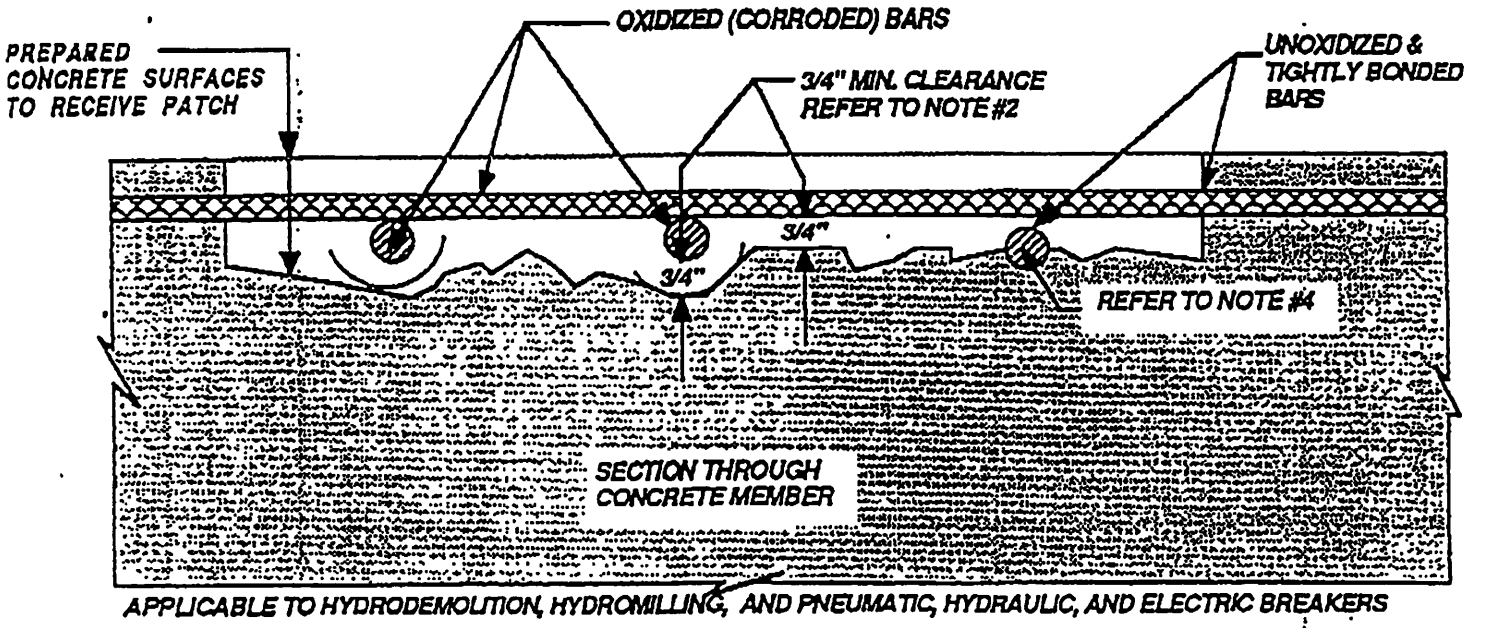
B. P. Taurinski

STRUCTURAL ENGINEERS

6971 N. FEDERAL HIGHWAY, SUITE 204
BOCA RATON, FLORIDA 33487
FAX: (561) 997-7785
(561) 997-6141

EXPOSING & UNDERCUTTING REINFORCING STEEL

APPLICABLE TO HORIZONTAL, VERTICAL, AND OVERHEAD LOCATIONS



APPLICABLE TO HYDRODEMOLITION, HYDROMILLING, AND PNEUMATIC, HYDRAULIC, AND ELECTRIC BREAKERS

CAUTION! BEFORE STARTING REMOVALS, REVIEW EFFECT OF REMOVALS ON STRUCTURAL INTEGRITY. PROVIDE SHORING OF MEMBER AS NECESSARY. PARTICULAR CARE SHALL BE EXERCISED AT SLAB/BEAM CONNECTIONS TO COLUMNS.

1) *REMOVE LOOSE OR DELAMINATED CONCRETE ABOVE OXIDIZED REINFORCING STEEL. ONCE INITIAL REMOVALS ARE MADE, PROCEED WITH THE UNDERCUTTING OF ALL EXPOSED OXIDIZED (CORRODED) BARS. UNDERCUTTING WILL PROVIDE CLEARANCE FOR UNDER BAR CLEANING, FULL BAR CIRCUMFERENCE BONDING TO SURROUNDING CONCRETE, AND WILL SECURE THE PATCH STRUCTURALLY.*

2) *PROVIDE MINIMUM 3/4" CLEARANCE BETWEEN EXPOSED REBARS AND SURROUNDING CONCRETE OR 1/4" LARGER THAN LARGEST AGGREGATE IN REPAIR MORTAR, WHICH EVER IS GREATER.*

3) *CONCRETE REMOVALS SHALL EXTEND ALONG THE BARS TO LOCATIONS ALONG THE BAR FREE OF BOND INHIBITING CORROSION, AND WHERE THE BAR IS WELL BONDED TO SURROUNDING CONCRETE.*

4) *IF UNOXIDIZED REINFORCING STEEL IS EXPOSED DURING THE UNDERCUTTING PROCESS, CARE SHALL BE TAKEN NOT TO DAMAGE THE BAR'S BOND TO SURROUNDING CONCRETE. IF BOND BETWEEN BAR AND CONCRETE IS BROKEN, UNDERCUTTING OF THE BAR SHALL BE REQUIRED.*

5) *ANY REINFORCEMENT WHICH IS LOOSE SHALL BE SECURED IN PLACE BY TYING TO OTHER SECURED BARS OR BY OTHER APPROVED METHODS.*

B. P. Taurinski

STRUCTURAL ENGINEERS

6971 N. FEDERAL HIGHWAY, SUITE 204
BOCA RATON, FLORIDA 33487

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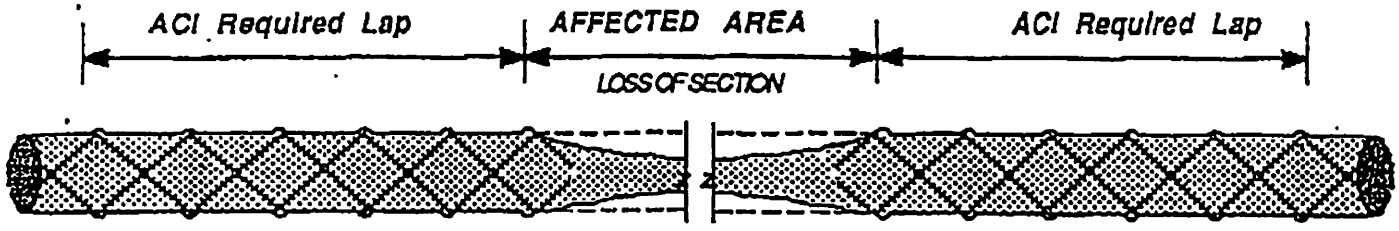
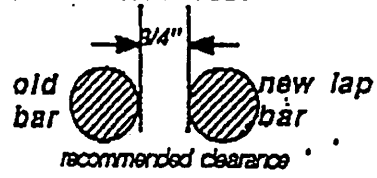
(561) 997-6141

REPAIR OF REINFORCING STEEL DUE TO LOSS OF SECTION



IF REBAR HAS LOST MORE THAN 25% OF ITS CROSS SECTION (20% IF 2 OR MORE CONSECUTIVE PARALLEL BARS ARE AFFECTED), A STRUCTURAL ENGINEER SHOULD BE CONSULTED.

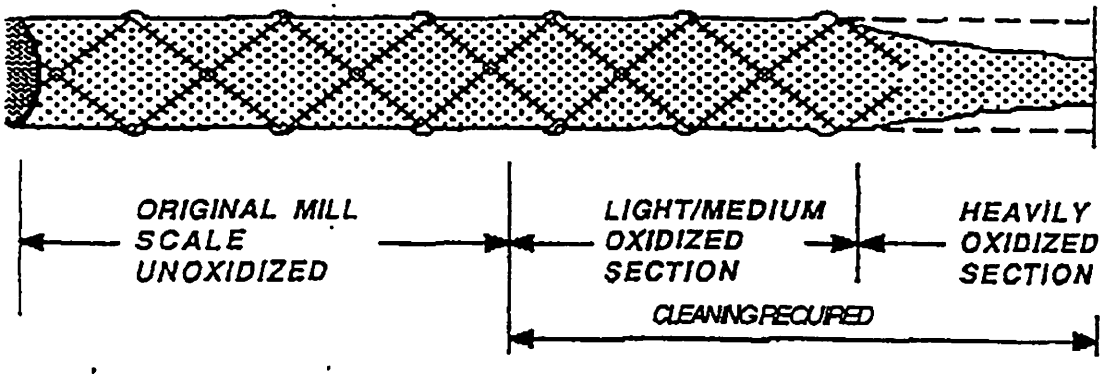
IF REPAIRS ARE REQUIRED TO THE REINFORCING STEEL ONE OF THE FOLLOWING REPAIR METHODS SHOULD BE USED:

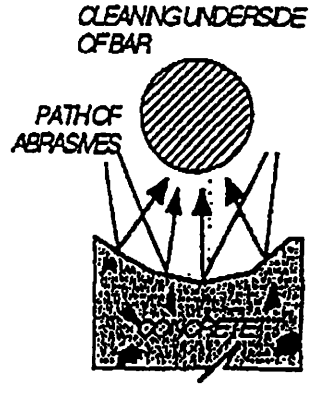


- COMPLETE BAR REPLACEMENT, OR
- ADDITION OF SUPPLEMENTAL BAR OVER AFFECTED SECTION. NEW BAR MAY BE MECHANICALLY SPLICED TO OLD BAR OR PLACED PARALLEL TO AND APPROXIMATELY 3/4" FROM EXISTING BAR.

LAP LENGTH SHALL BE DETERMINED IN ACCORDANCE WITH ACI 318, ALSO REFER TO CRSI AND AASHTO MANUAL

CLEANING OF REINFORCING STEEL





ALL HEAVY OXIDES AND SCALE SHOULD BE REMOVED FROM THE BAR AS NECESSARY TO PROMOTE MAXIMUM BOND OF REPLACEMENT MATERIAL. OIL FREE ABRASIVE BLAST IS THE PREFERRED METHOD. A TIGHTLY BONDED LIGHT OXIDE BUILD-UP ON THE SURFACE MAY RESULT FROM HIGH-PRESSURE WATERBLASTING, WITH OR WITHOUT ABRASIVE. THIS IS USUALLY NOT DETRIMENTAL TO BOND, UNLESS A PROTECTIVE COATING IS BEING APPLIED TO THE BAR SURFACE, IN WHICH CASE THE COATING MANUFACTURER'S RECOMMENDATIONS FOR SURFACE PREPARATION SHOULD BE FOLLOWED.

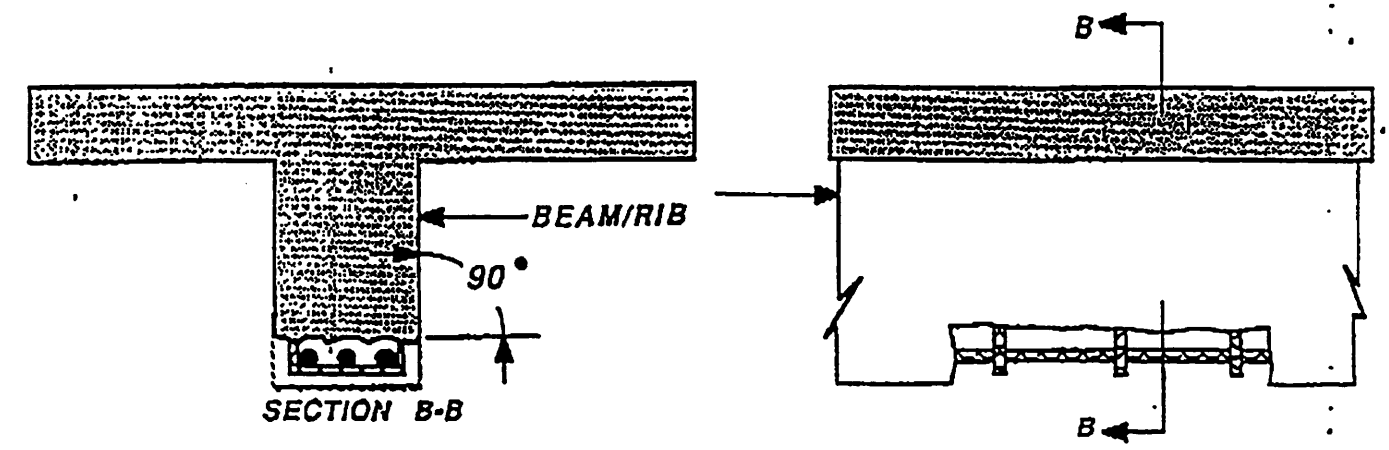
B. P. Taurinski

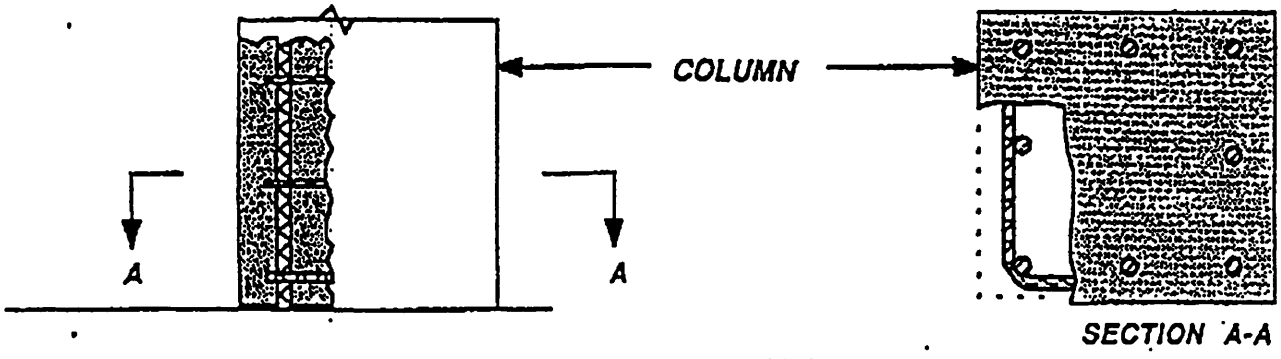
STRUCTURAL ENGINEERS

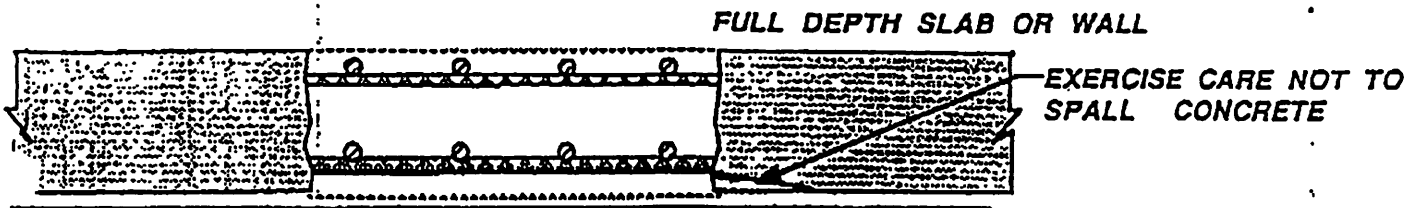
6971 N. FEDERAL HIGHWAY, SUITE 204
BOCA RATON, FLORIDA 33487

FAX: (561) 997-7785
(561) 997-6141

REMOVAL GEOMETRY







CAUTION! BEFORE STARTING REMOVALS, REVIEW EFFECT OF REMOVALS ON STRUCTURAL INTEGRITY. PROVIDE SHORING OF MEMBER AS NECESSARY. PARTICULAR CARE SHALL BE EXERCISED AT SLAB/BEAM CONNECTIONS TO COLUMNS.

Sonneborn

Concrete Repair Systems

SONOCRETE™

SONOPATCH® 100

Two-component multi-purpose repair mortar

Features

- Fast setting...
- High compressive strengths...
- Easily mixed and applied...
- Polymer modified...

Benefits

- Foot traffic in 24 hours
- Durable repairs
- Labor saving
- Resists de-icing salts

Where to Use Sonopatch® 100

- Repair of structurally deteriorated concrete surfaces
- Repair of spalls and cavities
- Horizontal and vertical surfaces
- Above or below grade
- Interior or exterior

How to Apply Sonopatch® 100

Surface Preparation

1. Surfaces must be clean, sound, free of laitance, standing water, dust, grease, and other surface contaminants.
2. Remove all loose materials by hand or mechanically with a chipping hammer, chisel, scabbler, sandblast, waterblast, or similar methods.
3. Any exposed steel reinforcement must be cleaned to a white metal finish and primed with an anti-corrosive coating (see Sonoprep™ Data Guide Form No. SC-290).
4. For proper adhesion, concrete must have a fractured aggregate profile.
5. Repair areas should have saw cut straight edges with a minimum depth of 1/4" (6 mm) (avoid featheredging).

Mixing

1. Precondition Sonopatch® to 70°F ± 5° (21°C ± 3°) before mixing.
2. For best results, mechanically mix at slow speed with a 3/4" drill and mixing paddle.
3. Add most (all but 1 to 2 cups) of the 3/4 gallon (2.84 L) of Part A liquid into a clean mixing container. Add 42 lb. (19.1 kg) unit of Part B powder by gradually sifting the material while mixing with a slow speed 3/4" drill and mixing paddle. Mix until thoroughly blended. Add remaining Part A liquid to achieve the desired placement consistency. Continue mixing for approximately 2 minutes to ensure a uniform lump-free consistency.
4. Placement time is 15 minutes at 70°F (21°C) and 50% humidity.
5. If projects require larger quantities, multiple units may be mixed in a mortar mixer as follows **(a)** predampen mortar mixer **(b)** remove any excess water **(c)** add 3/4 gallon (2.84 L) unit of Part A per 42 lb. (19.1 kg) unit of Part B **(d)** add units gradually **(e)** mix for 2 minutes to a lump-free uniform consistency.

Application

1. Dampen the surface with clean water; it must be saturated surface dry (SSD) with no standing water.
2. Apply a small quantity of the mixed Sonopatch® 100 to the SSD substrate. Thoroughly scrub, key in, and work the material throughout the cavity to promote bond.
3. Place the mortar into the damp scrub coat. Key in and compact thoroughly to secure bond.
4. Trowel the material to the desired finish after initial set. Featheredging may result in reduced performance.
5. The maximum single lift recommended is 3/4" (19 mm) in depth. For applications greater than 3/4", Sonopatch® 100 must be extended with up to 42 lbs. (19 kg) of suitable aggregate per kit. To add additional aggregate, first mix the Sonopatch® according to directions. While continuing to mix, add the maximum amount of washed, graded, SSD, low-absorption, high-density aggregate that will allow for proper consolidation of the repair material. Adjust the mixture to the same consistency it had before the aggregates were added by adding small quantities of Part A or Part B. If successive lifts are installed, each lift should be scored and allowed to reach initial set before the next layer is applied.

Curing

Curing is mandatory for all repairs. Either damp curing for at least 3 days or proper application of an appropriate Sonneborn curing compound is satisfactory. Extra care should be taken to retain moisture for application on thin sections and in direct sunlight, hot weather, and wind.

Clean Up

Clean all tools and equipment immediately with water. Cured material can be removed by mechanical means only.

For Best Performance

- Sonopatch® 100 is recommended for concrete repairs only.
- Do not bridge moving cracks or joints.
- DO NOT apply below 40°F (4°C) or above 90°F (32°C).
- Protect from freezing before cure (24 hours).
- For large applications (such as overlays) a bonding agent such as EpoGrip™ or Sonoprep™ (Form No. SC-273 or SC-290) is strongly recommended.
- Aggregate extension application of this mortar should be in accordance with ACI concrete guidelines.
- Do not add any admixtures.
- Featheredge applications may suffer reduced performance.
- For large repair areas with no control, expansion, or construction joints, refer to ACI guidelines.
- Protect liquid Part A from freezing; if frozen, discard.
- Do not exceed liquid requirements.
- Do not exceed a length to width ratio of 2 to 1 for the repair area.
- Failure to follow good trade practices may result in decreased material performance.
- Make certain the most current version of this data guide is being used; call Customer Service (1-800-433-9517) to verify the most current version.
- Proper application is the responsibility of the user. Field visits by Sonneborn personnel are for the purpose of making technical recommendations only, and are not to supervise or provide quality control on the job site.

Technical Data

Typical Properties	
Working time at 70°F (21°C), minutes	15

Compressive Strength, psi ASTM C 109 *modified	
1 Day	800
28 Days	5,000

* 50% relative humidity

Modulus of Elasticity, psi ASTM C 215	
Result	2.8×10^6

Splitting Tensile Strength, psi ASTM C 496 (50% relative humidity)	
1 Day	140
28 Days	650

Flexural Strength, psi ASTM C 348 *modified	
1 Day	200
28 Days	1,450

* 50% relative humidity

Bond Strength, psi ASTM C 882 *modified	
1 Day	300
28 Days	2,200

* Mortar scrubbed into substrate

Chloride Permeability, in coulombs AASHTO-T-277 (According to ASTM C 1202-91, Table 1)	
Result	Very low range

Length Change (shrinkage data), % expansion ASTM C 157 (wet cure)	
1 day	+0.014
28 days	+0.028

Linear Coefficient of Thermal Expansion, inches/inch/°F ASTM C 531	
Result	2.24×10^{-6}

Test results are averages obtained under laboratory conditions. Reasonable variations can be expected.

Order Information

Packaging

Sonopatch® 100

- Part A: 1 gallon plastic jug containing 3/4 gallon (2.84 L) liquid.
- Part B: 42 lb. (19.1 kg) bag powder

Shelf life is typically 1 year if stored in unopened containers under normal conditions.

Protect liquid Part A from freezing; do not store below 35°F (1.7°C).

Color

Concrete gray

Coverage

- 42 lb. (19.1 kg) bag yields 0.4 cubic ft. (0.011 m^3)
- When extended with 42 lbs. (19.1 kg) coarse aggregate, Sonopatch® 100 yields 0.60 cubic ft. (0.017 m^3)

Caution

Sonopatch® 100 contains Portland cement, silicon dioxide (quartz), calcium oxide, calcium aluminate

Risks

May cause skin, eye, or respiratory irritation. Product is alkaline on contact with water and may cause injury to skin or eyes. Ingestion or inhalation of dust may cause irritation. Contains a small amount of free respirable quartz which has been listed as a suspected human carcinogen by NTP and IARC. Repeated or prolonged overexposure to free respirable quartz may cause silicosis or other serious and delayed lung injury.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin and eyes. Prevent inhalation of dust. DO NOT take internally. Use only with adequate ventilation. Wash thoroughly after handling. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

VOC Content

Part A- 0 g/L or 0 lbs/gal.

Proposition 65

This product contains material listed by the state of California as known to cause cancer, birth defects or other reproductive harm.

For medical emergencies only, call ChemTrec (1/800/424-9300)

Customer Service: 1/800/433-9517

Technical Services: 1/800/ChemRex (1/800/243-6739)

Limited Warranty Notice

Every reasonable effort is made to apply ChemRex Inc. exacting standards both in the manufacture of our products and in the information which we issue concerning these products and their use. We warrant our products to be of good quality and will replace or, at our election, refund the purchase price of any products proved defective. Satisfactory results depend not only upon quality products, but also upon many factors beyond our control. Therefore, except for such replacement or refund, CHEMREX INC. MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, RESPECTING ITS PRODUCTS, and CHEMREX INC. shall have no other liability with respect thereto. Any claim regarding product defect must be received in writing within one (1) year from the date of shipment. No claim will be considered without such written notice or after the specified time interval. User shall determine the suitability of the products for the intended use and assume all risks and liability in connection therewith. Any authorized change in the printed recommendations concerning the use of our products must bear the signature of the ChemRex Inc. Technical Manager.

Sonneborn®

ChemRex Inc.

889 Valley Park Drive; Shakopee, MN 55379
www.chemrex.com

Manufacturing Plants: Minneapolis, MN; Fort Wayne, IN; Mattawan, MI; Brighton, CO.

Regional Warehouses: DeKalb, IL; Atlanta, GA; Hayward, CA; Fairfield, NJ; Dallas, TX; Ontario, CA; Brighton, CO; Brampton, ONT (Canada).

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Caution

Gel Patch contains Portland cement, silicon dioxide, calcium oxide, calcium aluminate, fly ash

Risks

Product is alkaline on contact with water and may cause injury to skin or eyes. Ingestion or inhalation of dust may cause irritation. Contains small amount of free respirable quartz which has been listed as a suspected human carcinogen by NTP and IARC. Repeated or prolonged overexposure to free respirable quartz may cause silicosis or other serious and delayed lung injury

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin and eyes. Prevent inhalation of dust. Wash thoroughly after handling. DO NOT take internally. Use only with adequate ventilation. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. Keep container closed when not in use

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product contains material listed by the state of California as known to cause cancer, birth defects or other reproductive harm.

VOC Content

This product contains 0.0 g/L less water and exempt solvents.

For medical emergencies only, call ChemTrec (1/800/424-9300)

Customer Service: 1/800/433-9517
Technical Services: 1/800/ChemRex (1/800/243-6739)

Limited Warranty Notice

Every reasonable effort is made to apply ChemRex Inc. exacting standards both in the manufacture of our products and in the information which we issue concerning these products and their use. We warrant our products to be of good quality and will replace or, at our election, refund the purchase price of any products proved defective. Satisfactory results depend not only upon quality products, but also upon many factors beyond our control. Therefore, except for such replacement or refund, CHEMREX INC. MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, RESPECTING ITS PRODUCTS, and CHEMREX INC. shall have no other liability with respect thereto. Any claim regarding product defect must be received in writing within one (1) year from the date of shipment. No claim will be considered without such written notice or after the specified time interval. User shall determine the suitability of the products for the intended use and assume all risks and liability in connection therewith. Any authorized change in the printed recommendations concerning the use of our products must bear the signature of the ChemRex Inc. Technical Manager.

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26M 1/99
Replaces 1/98

Sonneborn
Concrete Repair Systems

SONOCRETE®

GEL PATCH

Non-sag concrete repair mortar for vertical and overhead applications

- A lightweight single-component polymer-modified silica-fume enhanced mortar

Where to Use Gel Patch

- Concrete
- Masonry
- Block
- Above or below grade
- Vertical or overhead
- Interior or exterior

Features

- Non-sag...
- Very low chloride permeability...
- Easy to mix...
- Low shrinkage...
- Microscopic beads...
- Polymer modified...
- Precise blend of aggregate...

Benefits

- 2" (51 mm) thick lifts
- Can be readily sculpted, shaved, and finished
- Protects reinforcing steel from corrosion
- Mixed mechanically or by hand
- Stable bond line
- Lighter material, hangs better
- Improved adhesion
- Increased freeze-thaw stability
- Easy to trowel

How to Apply Gel Patch

Surface Preparation

1. Surfaces must be clean, sound, free of laitance, standing water, dust, grease, dirt, oil, efflorescence, paint, curing compounds, form oils, and other surface contaminants.
2. Mechanically remove all loose materials with chipping hammer, chisel, sandblast, waterblast, or similar methods.
3. For proper adhesion, the concrete substrate must have a fractured aggregate profile.
4. Clean any exposed steel reinforcement to a white metal finish and prime with an anti-corrosive coating like Sonoprep™ (See Form No. SC-290).
5. Repair areas should have saw-cut straight edges with a minimum of 1/4" (6 mm) depth (avoid featheredging).

Mixing

1. Precondition Gel Patch to 70°F ± 5° (21°C ± 3°) before mixing.
2. For best results, mechanically mix at slow speed with a 3/4" drill and mixing paddle. Hand mix for small patches.
3. Add approximately 2-3/4 quarts (2.6 L) of potable water into a clean mixing container. Gradually sift in powder 1/3 at a time while mixing continuously at slow speed (high speeds may entrain air). Mix for a minimum of 3 minutes to ensure a uniform lump-free consistency. Do not exceed a total of 3 quarts (2.8 L) of mixing water per 43 lb (19.8 kg) bag.
4. Placement time is 20 - 30 minutes at 70°F (21°C) and 50% relative humidity.
5. Multiple units may be mixed in a mortar mixer as follows: (a) predampen mortar mixer (b) remove any excess water (c) add 2-3/4 quarts (2.6 L) of clean water per 43 lb. (19.8 kg) unit (d) add units gradually (e) mix for 3 - 5 minutes to a uniform lump-free consistency (f) add remaining water as required, not to exceed 3 quarts (2.8 L) per 43 lb. (19.8 kg) unit.

Application

1. Dampen the surface with clean water; it must be saturated surface dry (SSD) with no standing water.
2. Apply a small quantity of mixed Gel Patch to the SSD substrate. Thoroughly key in and work the material throughout the cavity to promote bond.
3. Place mortar and key in and compact thoroughly to secure bond.
4. Apply material in lifts of 1/4" to 2" (6 mm to 51 mm). Avoid featheredging. For optimum mechanical bond on successive lifts, thoroughly score each lift and allow to reach initial set before the next layer is applied.
5. Trowel material to the desired finish after initial set.

Curing

Curing is mandatory. Damp cure for 3 days. If the surface cannot be damp cured, use an appropriate Sonneborn curing compound.

Clean Up

Clean all tools and equipment immediately with water. Cured material can only be removed by mechanical means.

Technical Data

Typical Properties

Working time at 70°F (21°C), minutes	20 - 30

Compressive Strength, psi
ASTM C 109 *modified

1 day	2,150
7 days	5,600
28 days	6,750

* 50% relative humidity

Modulus of Elasticity, psi
ASTM C 215

Result	5.6 x 10⁶

Splitting Tensile Strength, psi
ASTM C 496 *modified

1 day	310
7 days	560
28 days	610

* Wet cure

Flexural Strength, psi
ASTM C 348 *modified

1 day	500
7 days	900
28 days	1,110

* 50% relative humidity

Bond Strength, psi
ASTM C 882 *modified

1 day	900
7 days	1,900
28 days	2,450

* Mortar scrubbed into substrate

Water Absorption
ASTM C 642

28 days, %	4

Chloride Permeability, in Coulombs
AASHTO T-277 (according to ASTM C 1202-91, table 1)

Result	Very Low range

Length Change
ASTM C 157

Wet Cure (% expansion)		Dry Cure (50% relative humidity) (% shrinkage)	
1 day	0.019 in./in.	1 day	0.026 in/in
7 day	0.028 in/in	7 day	0.11 in/in
28 day	0.034 in/in	28 day	0.15 in/in

Linear Coefficient of Thermal Expansion
ASTM C 531

Result, inches/inch/°F	5.3 x 10⁻⁶

Test results are averages obtained under laboratory conditions. Reasonable variations can be expected.

For Best Performance

- Do not bridge moving cracks or joints.
- Do not add any admixtures or extend with aggregate.
- Bonding agents are recommend for large areas as well as permanently damp areas, see Form No. SC-275 on EpoGrip® or Form No. SC-298 on Sonoprep™.
- Do not apply below 40°F (4°C) or above 90°F (32°C).
- Protect from freezing for 24 hours after application.
- Do not exceed water requirements.
- Featheredge installations may suffer from reduced durability.
- Failure to follow good trade practices may result in decreased material performance.
- Make certain the most current version of this data guide is being used, call Customer Service (1-800-435-9517) to verify the most current version.
- Proper application is the responsibility of the user. Field visits by Sonneborn personnel are for the purpose of making technical recommendations only, and are not to supervise or provide quality control on the job site.

Order Information

Packaging
Gel Patch

- 43 lb. (19.8 kg) polyethylene lined bags.

Shelf life is typically 1 year when stored in unopened containers under normal conditions.

Color
Concrete gray

Coverage

- A 43 lb. (19.8 kg) bag yields 0.43 cubic ft. (0.012 cubic meters).

Caution

Sonogrout® 10K contains Portland cement, silicon dioxide (quartz)

Risks

Product is alkaline on contact with water and may cause injury to skin or eyes. Ingestion or inhalation of dust may cause irritation. Contains small amount of free respirable quartz which has been listed as a suspected human carcinogen by NTP and IARC. Repeated or prolonged overexposure to free respirable quartz may cause silicosis or other serious and delayed lung injury.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin and eyes. Prevent inhalation of dust. DO NOT take internally. Use only with adequate ventilation. Use impervious gloves, eye protection and if the TLV is exceeded or is used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, SEEK IMMEDIATE MEDICAL ATTENTION. If swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product contains materials listed by the state of California as known to cause cancer, birth defects or other reproductive harm.

For medical emergencies only, call ChemTrec 1/800/424/9300.

Customer Service: 1/800/433-9517
Technical Services: 1/800/ChemRex (1/800/243-6739)

Sonneborn
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Form No. SC-232

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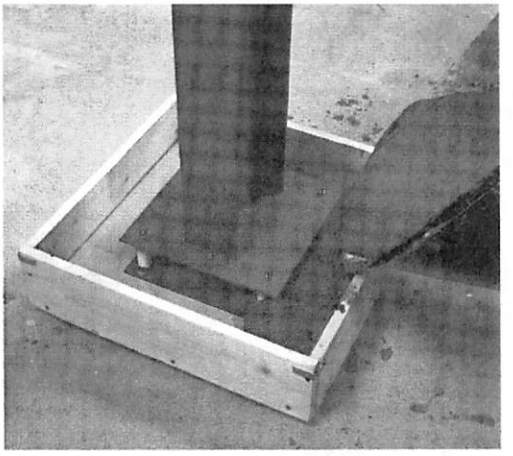
Sonneborn
Concrete Repair Systems

SONOCRETE®

SONOGROUT® 10K

Shrinkage-compensated nonmetallic high-strength grout



- An economical general-purpose construction grout conforming to Corps of Engineers CRD-C-621-85 and ASTM C 1107

Where to Use Sonogrout® 10K

- Interior or exterior
- Structural columns
- Patching and concrete repairs
- Machinery bases
- Bearing plates
- Pump and equipment bases
- Rail posts
- Seating bolts
- Power-line stanchions
- Food and chemical plants
- General new construction
- Restoration

Features

- One component...
- Flowable...
- Contains no added chlorides, iron, or gypsum...
- Dimensionally stable...
- Material has a clean appearance...
- Freeze-thaw cycling stable.

Benefits

- Mix with water, dry pack to pourable consistency
- Ease of placement
- Will not rust, bleed or harm metals on contact
- Needs no special treatment at edges, opened ends, cappings, or cut backs
- May be painted, coated, or trowel finished
- Will not produce efflorescence
- Durable

Building Tomorrow Together®

SKW-MBT

How to Apply Sonogrout® 10K

Surface Preparation

1. All areas to be grouted must be clean and free of oil, grease, dirt, and contaminants. Remove all loose materials. Concrete must be fully cured, a minimum of 28 days.
2. Where required, provide air-relief openings to avoid entrapment of air.
3. All metal components to be in contact with Sonogrout® 10K must be free of rust, paint or oils. For additional protection, coat reinforcing steel with Sonoprep™ (See Form No. SC-290).
4. All concrete to come into contact with the grout must be thoroughly saturated with clean water for a minimum of 12 hours before placement of grout. Remove excess water from holes and voids just before grout placement.

Mixing

Sonogrout® 10K is ready to use and requires only the addition of water. Use the minimum water required to achieve the desired placement consistency. Mix no longer than 5 minutes and place immediately.

Application

1. For column base plates and machinery bases, follow forming procedures that allow for rapid and continuous placement of the grout and complete filling of the space to be grouted.
2. Support elements should be anchored so that no movement is possible. Remove supports only after Sonogrout® 10K has hardened sufficiently.
3. Sonogrout® 10K should be placed in accordance with standard grouting procedures and recommendations of the ACI for placing and curing of concrete.
4. Use chains, rods, or tamping devices to compact grout tightly, completely removing all air voids. Place grout quickly and continuously, striking off exposed areas. The minimum placement depth is 1/2" (13 mm).
5. For grouting beyond 2" (5.0 mm) in depth, Sonogrout® 10K must be extended with up to 50 lbs. (22.7 kg) of properly sized, washed, saturated-surface-dry, graded, low-absorption, high-density aggregate. Use ACI concrete guidelines for proper practices regarding aggregate extension.
6. Water addition and temperatures will determine set time. From dry pack to flowable, set time will vary from approximately 3 to 8 hours. Lower temperatures will lengthen and higher temperatures will shorten the working and setting times.

Curing

Curing of the installed Sonogrout® 10K is mandatory. Either moist cure for at least 3 days or use any ASTM C 309-compliant Sonneborn curing compound on the exposed surfaces. Take extra care to retain moisture on installations in direct sunlight, high temperatures, and wind.

Clean Up

Clean all tools and equipment with water immediately. Cured material can be removed by mechanical means only.

Technical Data

Compliances

- Corps of Engineers CRD-C-621-85.
- ASTM C 1107, Grade A

Compressive Strength (psi)

	Dry Pack	Very Stiff Paste	Minimum Flow (soft to plastic)	Moderate Flow (plastic to pourable)
1 day			2,900	1,600
3 days			6,500	3,800
7 days			7,200	5,100
28 days	11,500	10,000	9,200	6,200

Dry pack mixed at 2 qts. per 50 lb. bag (83.5 g/kg powder); very stiff paste mixed at 2-1/4 qts. per 50 lb. bag (94.0 g/kg powder); minimum flow tested at 2-1/3 quarts water per 50 lb. bag (100 g/kg powder); moderate flow tested at 3-1/8 quarts water per 50 lb. bag (132 g/kg powder).

	Volume Change (%)
1 day	+.08
3 days	+.08
7 days	+.07
14 days	+.06
28 days	+.05

Test results are averages obtained under laboratory conditions. Reasonable variations can be expected.

For Best Performance

- Temperature should be as close to 70°F (21°C) as possible.
- Wood surfaces that can absorb moisture should be pre-treated with forming oils.
- Edges of concrete to be grouted that are less than 1" (25 mm) thick must be cut back to form a square-cut edge.
- For improved bond to existing concrete, use either EpoGrip™ or Sonoprep™ (see Form No. SC-275 or SC-290).
- Handle like concrete regarding protection against temperatures and weather; do not exceed limitations set by the American Concrete Institute on placement of concrete.
- Exceeding published water requirements will decrease performance.
- Exposed finished grout must be cured; use sheeting, water, or any Sonneborn curing compound.
- Do not add any cement or any other additives to Sonogrout® 10K.
- Do not retemper grout after initial mixing.
- When grouting particularly heavy equipment or when anticipating excessive vibration, consider the use of Sonneborn 14K High Flow (see Form No. SC-294).
- Additional information on grouts and trade practices can be found in "Cementitious Grouts and Grouting," published by the Portland Cement Association.
- Make certain the most current version of this data guide is being used; call Customer Service (1-800-433-9517) to verify the most current version.
- Proper application is the responsibility of the user. Field visits by Sonneborn personnel are for the purpose of making technical recommendations only, and are not to supervise or provide quality control on the job site.

Order Information

Packaging

Sonogrout® 10K

- Premixed and packaged in 50 lb. (22.68 kg) polyethylene-lined bags for easy handling and storing.

Shelf life is typically 9 months when stored in unopened bags under normal conditions.

Color

Concrete gray

Coverage

When mixed with water, a 50 lb. (22.68 kg) bag will yield approximately 0.40 cubic foot (0.011 cubic meters).

Sonneborn

Concrete Repair Systems

SONOCRETE®

SONOPREP™

Epoxy/Cement bonding and rebar anti-corrosion agent

Features

- Two-component kit...
- Breathable, nonvapor barrier...
- 24-hour open time...
- Low odor...
- Water clean up...
- Very low chloride permeability...
- Bonding agent...

Benefits

- Easy to use and apply
- Can be applied on grade
- Job-site work flexibility
- Use indoors with minimal ventilation
- User friendly
- Corrosion protection
- Excellent adhesion to concrete and steel

Where to Use Sonoprep™

- Reinforcing steel
- Bonding new concrete or mortar
- On grade or above grade
- Interior or exterior

How to Apply Sonoprep™

Surface Preparation

1 Concrete must be structurally sound and fully cured (28 days). Surfaces must be clean and free from all bond-inhibiting materials, including dust, grease, oil, laitance, waxes, and other contaminants.

2 Surface may be dry or damp, but must be free from standing water.

3 Shotblast concrete to provide a fractured aggregate profile.

4 Sandblast or wire brush steel to a white metal finish.

Mixing

1 Precondition both components to a temperature of 70°F ± 5° (21°C ±3°). Use 1 gallon (3.8 L) jug of Part A per 32 lb. (14.5 kg) bag of Part B. Mechanical mixing is required with a 3/4" drill. For best results, mix with a mortar mixing paddle. Shake jug containing Part A. Dispense entire contents of liquid Part A into a clean 5 gallon (18.93 L) mixing bucket.

2 While mixing slowly, add the Part B powder approximately 1/3 at a time. Mix thoroughly for approximately 3 minutes until the mixture has a uniformly colored lump-free consistency. Material should be remixed periodically to maintain optimal consistency. Mix only sufficient quantities that can be placed within the 60-minute pot life.

Application as an anti-corrosion agent

1 Completely remove all rust and corrosion by sandblasting or wirebrushing to achieve a white metal finish.

2 All surfaces must be free from bond-inhibiting materials, including oil, dust, dirt, and laitance.

3 Brush apply two coats at 10 mils (0.25 mm). Allow 30 - 50 minutes between applications. Install fresh mortar or concrete after Sonoprep™ has dried or within 24 hours. Two coats must result in a minimum of 20 mils (0.5 mm).

Application as a bonding agent

1 Dampen area to be repaired and provide a saturated surface dry (SSD) condition. Remove any standing water. Apply Sonoprep™ in one 10 mil (0.25 mm) coat with a stiff-bristle brush or spray with drywall hopper gun (backrolling may be necessary when Sonoprep™ is sprayed).

2 Place fresh mortar or concrete while Sonoprep™ is skinned over, but still wet, or within 24 hours

Clean Up

Clean tools with water immediately after use. Hardened material must be removed mechanically.

For Best Performance

- Apply only when surface temperatures are 50°F (10°C) and rising.
- Never add water to the mixture.
- Maximum substrate temperature should not exceed 85°F (29°C).
- At maximum application temperatures, open time is greatly reduced.
- When used as an anti-corrosion agent, minimum thickness is 20 mils (0.5 mm) (either 1 coat of 20 mils or 2 coats of 10 mils (0.25 mm) each).
- When using Sonoprep™ as a bonding agent, dampen the repair surface with clean water.
- Maximum open time 24 hours.
- Mix complete units only; mixing of partial units may result in reduced performance.
- Make certain the most current version of this data guide is being used; call Customer Service (1-800-433-9517) to verify the most current version.
- Proper application is the responsibility of the user. Field visits by Sonneborn personnel are for the purpose of making technical recommendations only, and are not to supervise or provide quality control on the job site.

Technical Data

Test Data

Property*	Results	Test Method
Pot life, minutes	Approximately 60	
Open time, hrs.	24 hours	
Bond strength, psi (Plastic to hardened concrete)	2 hours: 2,800 8 hours: 2,500 16 hours: 2,400 24 hours: 2,300	ASTM C 882
Tensile strength, psi (28 days)	500	ASTM C 190
Flexural strength, psi (28 days)	1,200	ASTM C 348
Rapid Chloride Permeability, Coulombs (28 days)	Very low range 250	AASHTO T-277 ASTM C 1202

* Test values for materials cured at 73°F (23°C) and 50% relative humidity.

Order Information

Packaging

Sonoprep™

5 gallon pail containing:

- Part A: 1 gallon jug (0.74 US gallons [2.8 L])
- Part B: 32 lb. bag (14.5 kg)

Shelf life is 12 months in unopened containers when stored under normal conditions.

Do not allow Sonoprep™ liquid Part A to freeze in the container. Do not store below 35°F (1.7°C).

Coverage

- Volume yield: 2.70 gallons (10.23 L) per kit
- As a bonding agent: 70 - 80 sq. ft. per gallon (1.72 - 1.9 m^2/L)
- As an anti-corrosion agent: 150 - 160 sq. ft. per gallon (3.68 - 3.92 m^2/L)
- Reinforcing Steel:
  - #2 1,100 linear ft. per gallon (88.6 m/L)
  - #4 550 linear ft. per gallon (44.3 m/L)
  - #6 370 linear ft. per gallon (29.8 m/L)
  - #8 270 linear ft. per gallon (21.7 m/L)

Danger—Corrosive

Sonoprep™ Part A contains aliphatic and tertiary amines

Risks

Contact with skin or eyes may cause burns. Potential skin and/or respiratory sensitizer. May cause respiratory irritation Overexposure may cause headache, nausea and vomiting. Ingestion may cause burns or other harm. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes and clothing. Wash thoroughly after handling. Avoid breathing vapors. Use only with adequate ventilation. Use impervious gloves, eye protection and if the TLV is exceeded or if used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. DO NOT take internally. Keep container closed when not in use. Empty container may contain hazardous residues. All label warnings must be observed until container is commercially cleaned or reconditioned.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product contains material listed by the state of California as known to cause cancer, birth defects or other reproductive harm.

VOC Content

This product contains 6 g/L or .05 lbs./gal.

Caution

Sonoprep™ Part B contains Calcium oxide, barium compound, Portland cement, silicon dioxide.

Risks

May cause skin and eye irritation. May cause dermatitis and allergic responses. Potential skin and/or respiratory sensitizer. Ingestion or inhalation of dust may cause irritation. May be harmful if swallowed. Contains small amount of free respirable quartz which has been listed as a suspected human carcinogen by NTP and IARC. Repeated or prolonged overexposure to free respirable quartz may cause silicosis or other serious and delayed lung injury.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin and eyes. Wash thoroughly after handling. Prevent inhalation of dust. Use only with adequate ventilation. Keep container closed when not in use. Use impervious gloves, eye protection and if the TLV is exceeded or used is in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. DO NOT take internally. Empty container may contain hazardous residue.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product contains material listed by the state of California as known to cause cancer, birth defects or other reproductive harm.

VOC Content

This product contains 0 g/L.

For medical emergencies only, call ChemTrec (1/800/424-9300).

Customer Service: 1/800/433-9517
Technical Services: 1/800/ChemRex (1/800/243-6739)
Web Site: www.chemrex.com

Sonneborn®

ChemRex Inc.

889 Valley Park Drive; Shakopee, MN 55379

Manufacturing Plants: Minneapolis, MN; Fort Wayne, IN; Mattawan, MI; Brighton, CO.

Regional Warehouses: DeKalb, IL; Atlanta, GA; Hayward, CA; Fairfield, NJ; Dallas, TX; Ontario, CA; Brighton, CO; Brampton, ONT (Canada).

Form No. SC-290

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Warning

EpoFil™ Part A contains trade secret.

Risks
May cause skin, eye and respiratory irritation. Ingestion may cause irritation. Potential skin and respiratory sensitizer. Repeated or prolonged contact with skin may cause sensitization. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions
KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes and clothing. Prevent breathing vapors. Use only with adequate ventilation. DO NOT take internally. Wash thoroughly after handling. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. Empty container may contain hazardous residue. All label warnings must be observed until the container is commercially cleaned or reconditioned.

First Aid
In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65
This product contains material listed by the state of California as known to cause cancer, birth defects or other reproductive harm.

Danger—Corrosive

EpoFil™ Part B contains proprietary amine mixture.

Risks
Contact with skin or eyes may cause burns. Potential skin and/or respiratory sensitizer. Respiratory irritant. Ingestion may cause burns or other harm. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions
KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eye and clothing. DO NOT breathe vapors. Use only with adequate ventilation. DO NOT take internally. Use impervious gloves, eye protection and if the TLV is exceeded or if used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. Empty container may contain hazardous residue. All label warnings must be observed until the container is commercially cleaned or reconditioned.

First Aid
In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. Remove and wash contaminated clothing. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65
This product does not knowingly contain materials listed by the state of California as known to cause cancer, birth defects or other reproductive harm.

Warning

EpoFil™ SLV Part A contains trade secret resin.

Risks
May cause skin, eyes and respiratory irritation. Ingestion may cause irritation. Potential skin and respiratory sensitizer. Repeated or prolonged contact with skin may cause sensitization. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions
KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes and clothing. Avoid breathing vapors. Wash thoroughly after handling. Use only with adequate ventilation. Use impervious gloves, eye protection and if the TLV is exceeded or if used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. Empty container may contain hazardous residues. All label warnings must be observed until container is commercially cleaned or reconditioned.

First Aid
In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65
This product contains material listed by the state of California as known to cause cancer, birth defects or other reproductive harm.

Danger—Corrosive

EpoFil™ SLV Part B contains trade secret.

Risks
Contact with skin or eyes may cause burns. May cause dermatitis and allergic reactions. Inhalation of vapors causes irritation. Ingestion may cause burns or other harm. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions
KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes and clothing. DO NOT breathe vapors. Wash thoroughly after handling. Use only with adequate ventilation. DO NOT take internally. Use impervious gloves, eye protection and if the TLV is exceeded or if used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. Empty container may contain hazardous residue. All label warnings must be observed until container is commercially cleaned or reconditioned.

First Aid
In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65
This product does not knowingly contain materials listed by the state of California as known to cause cancer and birth defects or other reproductive harm.

VOC Content
EpoFil™: When components are mixed, this product contains 0 g/L of VOC per gallon of material.

EpoFil™ SLV: When components are mixed, this product contains 0 g/L less water and exempt solvents.

For medical emergencies only, call ChemTrec (1/800/424-9300)

Customer Service: 1/800/433-9517
Technical Services: 1/800/ChemRex (1/800/245-6739)
Web Site: www.chemrex.com

Limited Warranty Notice

Every reasonable effort is made to apply Chemrex Inc. exacting standards both in the manufacture of our products and in the information which we issue concerning these products and their use. We warrant our products to be of good quality and will replace or, at our election, refund the purchase price of any products proved defective. Satisfactory results depend not only upon quality products, but also upon many factors beyond our control. Therefore, except for such replacement or refund, CHEMREX INC. MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, RESPECTING ITS PRODUCTS, and CHEMREX INC. shall have no other liability with respect thereto. Any claim regarding product defect must be received in writing within one (1) year from the date of shipment. No claim will be considered without such written notice or after the specified time interval. User shall determine the suitability of the products for the intended use and assume all risks and liability in connection therewith. Any author red change in the printed recommendations concerning the use of our products must bear the signature of the ChemRex Inc. Technical Manager.

Sonneborn
ChemRex Inc.
889 Valley Park Drive, Shakopee, MN 55379

Manufacturing Plants: Newark, CA; Denver, CO; Centerville, IN; Fort Wayne, IN; Mattawan, MI; Bloomington, MN; Bristol, PA

Regional Warehouses: Hayward, CA; Ontario, CA; Atlanta, GA; Chicago Heights, IL; Fairfield, NJ; Brampton, ONT (Canada); Grand Prairie, TX

Form No. SC 271

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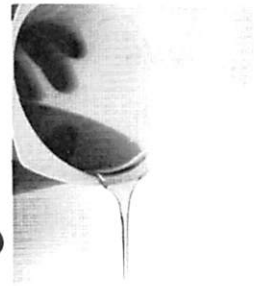
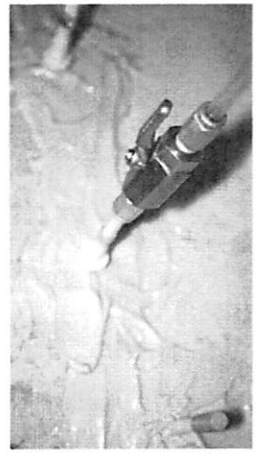
Sonneborn
Concrete Repair Systems

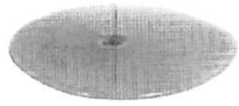
SONOCRETE®

EPOFIL™/EPOFIL™ SLV

High-modulus, low-viscosity epoxy injection resins







- Available in two versions – EpoFil™: Low viscosity EpoFil™ SLV: Super low viscosity for injecting very fine cracks

Where to Use EpoFil™ and EpoFil™ SLV

- High-strength structural bonding of cracks—applied manually or by automated injection systems
- When mixed with clean, dry sand, can be used as an epoxy mortar for patching and over-laying interior horizontal surfaces
- Gravity feed to repair cracks in floors
- Bonds to concrete, wood, steel
- Interior and exterior

Features

- 2 to 1 mixing ratio...
- Moisture insensitive...
- Tenacious bond strength...
- High early strength...
- Side-by-side cartridges available.
- Low viscosity...

Benefits

- Meets the mix ratio requirements of professional injection equipment
- Bonds to damp or dry surfaces
- Creates a permanent structural bond
- Returns structure to service fast
- Repairs cracked concrete without expensive equipment
- Penetrates deeply for reliable, complete crack repairs

How to Apply EpoFil™ and EpoFil™ SLV

The application instructions for EpoFil™ and EpoFil™ SLV are identical, with the exception of the pot life and the amount of sand added when EpoFil™ and EpoFil™ SLV are used for patching applications. Pay special attention to these instructions.

Surface Preparation

1. Surfaces must be clean, structurally sound, and fully cured (28 days) before application begins. They can be dry or damp, but must be free of standing water.
2. Surface must be free from dust, grease, curing compounds, waxes, laitance, loose deteriorated concrete, and other unsound materials.
3. Sandblast or power-wire-wheel steel to a white metal finish.
4. Blow surfaces clean with oil free compressed air.

Mixing

1. Precondition EpoFil™ to 70°F ± 5° (21°C ± 3°) before mixing.
2. Premix each component of EpoFil™ before mixing together.
3. Add 2 parts by volume of Part A to 1 part by volume of Part B in a clean mixing pail. Mix thoroughly for approximately 2 minutes using a low speed (400 - 500 rpm) drill and paddle mixer.
4. Thoroughly scrape the sides of the mixing container and continue to mix for an additional 1 minute to ensure a homogeneous mixture uniform in color.
5. Pot life of EpoFil™ SLV is 30 - 35 minutes at 77°F (25°C).

   Pot life of EpoFil™ is 20 - 25 minutes at 77°F (25°C).

   Increased temperatures will dramatically reduce the pot life.

Application

Pressure Injection of Cracks

1. EpoFil™ is specially designed and formulated to be mixed and applied with automatic pressure injection equipment. Follow the recommendations and directions supplied by the equipment manufacturer.
2. Seal ports and cracks with EpoGel™ or Rapid Gel non-sag epoxy adhesives (See Form Nos. SC-272 and SC-268).
3. When EpoGel™ or Rapid Gel is thoroughly cured, inject EpoFil™ using standard pressure injection equipment or by gravity feed method.
4. For crack injection using a manual side by side dispenser, hold in an upright position to ensure proper mixing, and avoid gravity discharge of low viscosity component.

Flooring Mortar for Patching Applications

1. Cut the edge of the patch to a 90° angle to eliminate featheredging.
2. Mix mechanically using a slow-speed drill and paddle mixer. Add 2 parts by volume of Part A to 1 part by volume of Part B to a clean mixing container. Mix for a minimum of 2 minutes until evenly blended to a uniform color.
3. Prime the prepared substrate. Neatly apply EpoFil™ mixture using a brush or roller.
4. Add approximately 4 - 5 parts by loose volume of 20/40 grade clean dry sand to one part by volume of EpoFil™ mixture. Add 5 - 6 parts by loose volume of 20/40 grade clean dry sand to one part by volume of EpoFil™ SLV mixture. Continue mixing to a uniform homogeneous lump-free consistency (Mix only a quantity of material that can be placed within the pot life.)
5. While prime coat is still tacky, apply and compact the EpoFil™ mortar mixture and finish with steel trowel and allow to cure.

Side-by-Side cartridges

1. Insert cartridges filled with EpoFil™ into pneumatic dispense gun, making sure that properly sized piston head is inserted into each cartridge seal. Connect air lines with pressure regulator set at 90 psi (0.62 N/mm²).
2. Immediately install flow restrictors and the static mixer with retaining nut.
3. Increase air pressure to desired flow rates and dispense 1 to 2 inches (25 - 51 mm) of materials before proceeding with the application.

Clean Up

Tools may be cleaned with Reducer 990 or xylene before cure of epoxy material. Avoid contact of solvents with skin. Cured epoxy material must be mechanically abraded.

For Best Performance

- Do not thin with solvents.
- Keep from freezing.
- Do not remove flow restrictors on side by side cartridge static mixers.
- Do not use when temperatures fall below 40° F (4°C).
- Not for use on exterior slabs as a slab sealer.
- Concrete must be fully cured at least 28 days.
- Injection cracks should not exceed 1/4" (6 mm) in diameter.
- Use only clean, dry sand for aggregate-extended mortar.
- Will discolor when exposed to UV light.
- Always apply slow even pressure with side-by-side cartridges; excessive pressure may cause improper mixing or damage to cartridges resulting in seeping of material.
- Maximum lift recommendation for EpoFil™ mortar is one inch (25 mm).
- Make certain the most current version of this data guide is being used. call Customer Service (1-800-433-9517) to verify the most current version.
- Proper application is the responsibility of the user. Field visits by ChemRex Inc. personnel are for the purpose of making technical recommendations only, and are not to supervise or provide quality control on the job site.

Technical Data

Compliances
EpoFil™

- Most State DOTs (contact Technical Services for more information)
- ASTM C 881, Type I, II, IV, V, Grade 1, Classes B and C
- Meets USDA specifications for use in food processing plants

Typical Properties	
Pot Life, minutes	
40°F (4°C)	Approximately 40
77°F (25°C)	Approximately 25
90°F (32°C)	Approximately 10
Viscosity cps at 77°F (25°C)	Approximately 750

Compressive Strength, psi ASTM D 695

Time	73°F (23°C)
8 hours	3,000
16 hours	5,000
1 day	7,500
3 days	9,500
7 days	10,000
14 days	10,500
28 days	10,600

Compressive Modulus, psi ASTM D 695

28 days	5.9 x 10⁵

Tensile Properties ASTM D 638

Property	14 days
Tensile strength, psi	7,300
Elongation at break, %	8
Modulus of elasticity	4.5 x 10⁵

Flexural Properties ASTM D 790 (at 14 days)

Flexural strength, psi	8,600

Shear Strength ASTM D 732

psi	8,800

Bond Strength ASTM C 882 (hardened concrete to hardened concrete)

2 days (dry cure), psi	2,300
14 days (wet cure), psi	3,000

Water Absorption ASTM D 570

Total water absorption, % (24 hour immersion)	0.84

Heat Deflection ASTM D 648

14 days, °F (°C)	120 (49)

All material values assume 73°F (23°C) and 50% relative humidity.

Compliances
EpoFil™ SLV

- Most State DOTs (Contact Technical Services for more information)
- ASTM C 881, Type I, II, and V, Classes B & C, Grade 1
- Meets USDA specifications for use in food processing plants

Typical Properties	
Pot Life, minutes	
40°F (4°C)	Approximately 55
77°F (25°C)	Approximately 35
90°F (32°C)	Approximately 12
Viscosity cps at 77°F (25°C)	Approximately 175

Compressive Strength, psi ASTM D 695

Time	73°F (23°C)
8 hours	1,600
16 hours	6,000
1 day	9,000
3 days	10,000
7 days	10,500
14 days	10,500
28 days	10,600

Compressive Modulus, psi ASTM D 695

28 days, psi	210,000

Tensile Properties ASTM D 638

Property	14 days
Tensile strength, psi	6,700
Elongation at break, %	3.0
Modulus of elasticity	4.5 x 10⁵

Flexural Properties ASTM D 790 (at 14 days)

Flexural strength, psi	9,600

Shear Strength ASTM D732

psi	9,000

Bond Strength ASTM C 882 (hardened concrete to hardened concrete)

2 days (dry cure), psi	2,400
14 days (wet cure), psi	3,600

Water Absorption ASTM D 570

Total water absorption, % (24 hour immersion)	0.85

Heat Deflection ASTM D 648

14 days, °F (°C)	120 (49)

All material values assume 73°F (23°C) and 50% relative humidity.

Test results are averages obtained under laboratory conditions. Reasonable variations can be expected.

Order Information

Packaging
EpoFil™ and EpoFil™ SLV

- 5 gallon kits consisting of 2 gallons (7.6 L) Part A and 1 gallon (3.8 L) Part B

EpoFil™

- 300 by 150 mL side-by-side cartridges (450 mL total)

Shelf life is 2 years when stored in an unopened container under normal conditions.

Color
Amber when mixed

Coverage

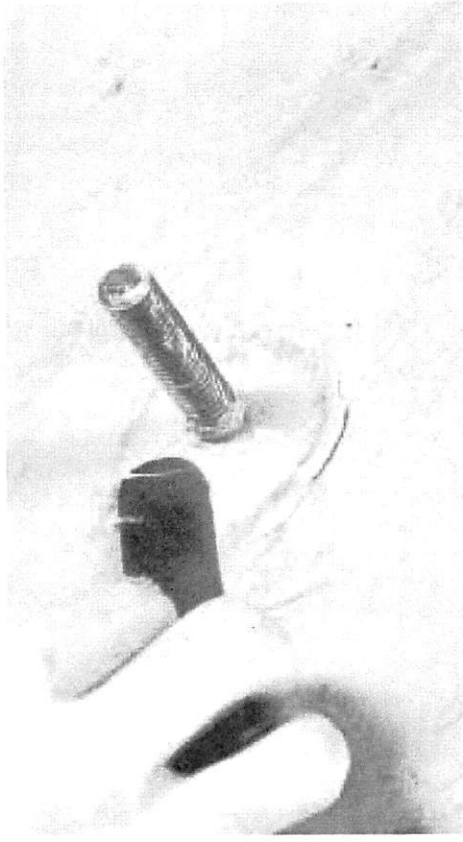
- One gallon yields 231 cubic inches (0.001 m³/L)
- EpoFil™: One gallon (3.8 L) with 4 - 5 parts clean, dry sand produces approximately 0.4 - 0.5 ft.³ of epoxy mortar
- EpoFil™ SLV: One gallon (3.8 L) with 5 - 6 parts clean, dry sand produces approximately 0.5 - 0.6 ft.³ of epoxy mortar

Sonneborn
Concrete Repair Systems

SONOCRETE®

EPOGEL™

High-strength, high-modulus, non-sag epoxy gel adhesive



Where to Use EpoGel™

- Sealing cracks and setting injection ports before pressure injection
- Grouting bolts and pins in horizontal and overhead applications
- Grouting horizontal, vertical, and overhead cracks in static (non-moving) structural concrete
- Structural adhesive for concrete and masonry
- As a pickproof material around windows, doors, lock-ups in prisons and detention centers
- Interior and exterior

Features

- 1 to 1 mixing ratio...
- High-strength bonding characteristics...
- Insensitive to moisture...
- Paste consistency...
- Pickproof...
- Available in side-by-side cartridges...
- Pumpable...
- ICBO acceptance (RR #5353)...

Benefits

- Easy to measure and mix
- Excellent adhesion to most structural materials
- Bonds to dry and damp substrates
- Ideal for vertical and overhead applications
- Use inside correctional facilities
- Fast and easy to use
- Does not wear out dispensing equipment
- Fast placement for production work, e.g., pavement dowel setting
- Specified code compliance

How to Apply EpoGel™

Surface Preparation

1 Surfaces must be clean and structurally sound and fully cured (28 days). They can be dry or damp, but must be free of standing water.

2 Surface must be free from dust, grease, curing compounds, waxes, laitance, loose deteriorated concrete, and other unsound materials.

3 When bonding to concrete, create a sound, fractural aggregate profile.

4 Clean steel to a white metal finish.

Mixing

1 Precondition material to 70°F ± 5° (21°C ± 3°).

2 Premix each component of EpoGel™ separately before mixing together.

3 EpoGel™ is packaged in a 1 to 1 (A:B) ratio for easy mixing. Add equal parts by volume of Part A and Part B in a clean mixing pail.

4 Mix thoroughly for approximately 2 minutes using a low speed (400 to 500 rpm) drill and paddle mixer.

5 Thoroughly scrape the sides of the mixing container, then mix for an additional 1 minute to ensure a uniform, homogeneous mixture.

6 Pot life is approximately 30 minutes at 77°F (25°C).

Increased temperatures will dramatically reduce the pot life.

Application

Surface sealing before pressure injection

1 Apply the neat mixed EpoGel™ to the cracks to be pressure injected and around each injection port. Using a margin trowel or putty knife, force the material against the concrete and around the injection ports, sealing the cracks.

2 Allow the EpoGel™ to cure before pressure injection.

As a pick-proof sealant

Apply an appropriate size bead of neat, mixed EpoGel™ to the area being sealed.

Anchor bolts, dowels, and rebar

1 The anchor-bolt hole must be no more than 1/4" (6 mm) larger than the diameter of the bolt, dowel, or rebar.

2 Depth of the hole is typically 10 - 15 times the diameter of the bolt, dowel, or rebar.

3 Scrub the bolt cavity with a stiff bristle brush to remove all dust, dirt, or bond-inhibiting material. Blow the cavity clean with oil-free compressed air.

4 Apply EpoGel™ mixture into hole, filling it approximately half full. Butter the bolt, dowel, or rebar with mixed EpoGel™, then force it to the bottom until EpoGel™ flows from the cavity. Twist the bolt to ensure good contact and bond.

Structural adhesive

1 Apply a neat mixture of EpoGel™ to the clean, prepared surface by trowel or spatula.

2 Work the EpoGel™ into the substrate for positive adhesion. The glue line should be kept as thin as possible and must not exceed 1/4" (6 mm).

3 Carefully secure the bonded unit in place while EpoGel™ is still tacky. If EpoGel™ loses tackiness or cures before bonding, material must be mechanically abraded.

Side-by-side cartridges

1 Insert cartridges filled with EpoGel™ into pneumatic dispense gun, making sure that the properly sized piston head is inserted into each cartridge seal. Connect air lines with pressure regulator set at 90 psi (0.62 N/mm²).

2 Point dispenser without mixer tip into waste container. Advance pistons forward until material flows from both sides of the cartridge. Immediately install the static mixer with retaining nut.

3 Increase air pressure to desired flow rates and dispense 1 to 2 inches (25 - 51 mm) of material to establish a uniform mixed color before proceeding with the application.

Preparing an epoxy mortar

1 Slowly add 1 part by loose volume of clean dry sand to 1 part of premixed EpoGel™. Mix combined epoxy and aggregate until uniform in consistency and color.

Clean Up

Clean tools with Reducer 990 or xylene before epoxy cures. Avoid solvent contact with skin. Cured material must be removed mechanically.

For Best Performance

- Application temperatures must be above 40 °F (4°C).
- Do not thin; solvents will prevent proper curing.
- Maximum lift recommendation for EPoGel™ mortar is one inch (25 mm).
- As a pickproof sealant, use only in nonmoving joints and openings. For moving joints and openings, use Ultra Sealant (see Form No. SJ-444).
- Will discolor when exposed to UV light.
- For epoxy mortar mix, use clean dry sand only.
- Always apply slow even pressure with side-by-side cartridges; excessive pressure may cause improper mixing or damage to cartridges resulting in seeping of material.
- Make certain the most current version of this data guide is being used; call Customer Service (1-800-433-9517) to verify the most current version.
- Proper application is the responsibility of the user. Field visits by Sonneborn personnel are for the purpose of making technical recommendations only, and are not to supervise or provide quality control on the job site.

Technical Data

Compliances

- ASTM C 881, Type I, II, IV and V, Grade 3, Class B and C
- Meets USDA specifications for use in food processing plants

Test Data

Property and Test Method	Result	Specifications
Consistency	0 (no flow)	
Shore D	>90	ASTM D 2240
Pot life, minutes ASTM C 881	35	$30_{1,2,4,5}$ minimum
Bond strength, psi ASTM C 882, (2 day cure)	2,232	$1,000_{1,4}$ minimum
Bond strength, psi ASTM C 882, (14 day cure)	2,460	$1,500_{1,2,4,5}$ minimum
Water absorption, % ASTM D 570	0.63	$1.0_{1,2,4,5}$ maximum
Linear coefficient of shrinkage ASTM D 2566	0.0007	$0.005_{1,2,4,5}$ maximum
Compressive strength, psi ASTM D 695	11,236	$5,000_2$ minimum $8,000i_{1,5}$ $10,000_4$
Compressive modulus, psi ASTM D 695	250,100	$90,000_2$ minimum $150,000_{1,5}$ $200,000_4$
Elongation at break, % ASTM D 638	2.56	$1.0_{1,2,4,5}$ minimum
Shear strength, psi ASTM D 732	3,550	NA
Flexural strength, psi ASTM D 790	5,582	NA
Shrinkage ASTM C 884	Pass	NA
Thermal compatibility ASTM C 884	Pass	NA

1: ASTM C 881 Type I, 2: ASTM C 881 Type II, 4: ASTM C 881 Type IV, 5: ASTM C 881 Type V

Average Ultimate Loads for EpoGel™
Rebar Pull-out Tests in Accordance with ASTM E 488

Rebar size	Hole diameter (inches)	Embedment depth[1] (inches)	Total load (lbs.)
#4	5/8	6	16,000
#5	3/4	6-3/4	26,000
#6	7/8	7-1/2	36,000
#7	1-1/8	8-1/4	51,000
#8	1-1/4	9	64,000

1: Shallower embedment depth may be used, but values may vary. Job site testing is required.

Test results are averages obtained under laboratory conditions. Reasonable variations can be expected.

Order Information

Packaging

EpoGel™

- 2 gallon kits consisting of 1 gallon (3.8 L) Part A and 1 gallon (3.8 L)Part B
- Side-by-side (300 by 300 mL) cartridges

Shelf life is 2 years when stored in unopened containers under normal conditions.

Color

Gray

Coverage

- Neat bonding adhesive
  Approximately 80 sq. ft. per gallon (2 m^2/L) at 20 mils (0.5 mm) on a smooth surface. Coverage varies with substrate conditions.
- Adhesive
  231 cubic inches per gallon (0.001 m^3/L).
- Mortar
  One gallon (3.8 L) with 1 part clean, dry sand produces approximately 0.2 $ft.^3$.

Danger—Corrosive

EpoGel™ Part A contains trade secret resin

Risks

May cause eye, skin or respiratory irritation. Ingestion may cause irritation. Repeated or prolonged contact with skin may cause sensitization. Potential skin and respiratory sensitizer. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes and clothing. Avoid breathing vapors. Use only with adequate ventilation. DO NOT take internally. Use impervious gloves, goggles and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product contains material listed by the state of California as known to cause cancer, birth defects or other reproductive harm.

VOC Content

When components are mixed, this product contains 0 g/L or 0 lbs. of VOC per gallon of material.

Danger—Corrosive

EpoGel™ Part B contains trade secret

Risks

Contact with skin or eyes may cause burns. May be absorbed through skin in harmful amounts. Potential skin and/or respiratory sensitizer. Respiratory irritant. Ingestion may cause burns or other harm. Repeated exposure may cause injury to the kidneys or liver.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes and clothing. Avoid breathing vapors. Use only with adequate ventilation. DO NOT take internally. Use impervious gloves, goggles and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations.

First Aid

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VOC Content

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For medical emergencies only, call ChemTrec (1/800/424-9300)

Customer Service: 1/800/433-9517
Technical Services: 1/800/ChemRex (1/800/243-6739)
Web Site: www.chemrex.com

Sonneborn®

ChemRex Inc.

889 Valley Park Drive; Shakopee, MN 55379

Manufacturing Plants: Minneapolis, MN; Fort Wayne, IN; Mattawan, MI; Brighton, CO.

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Form No. SC-272

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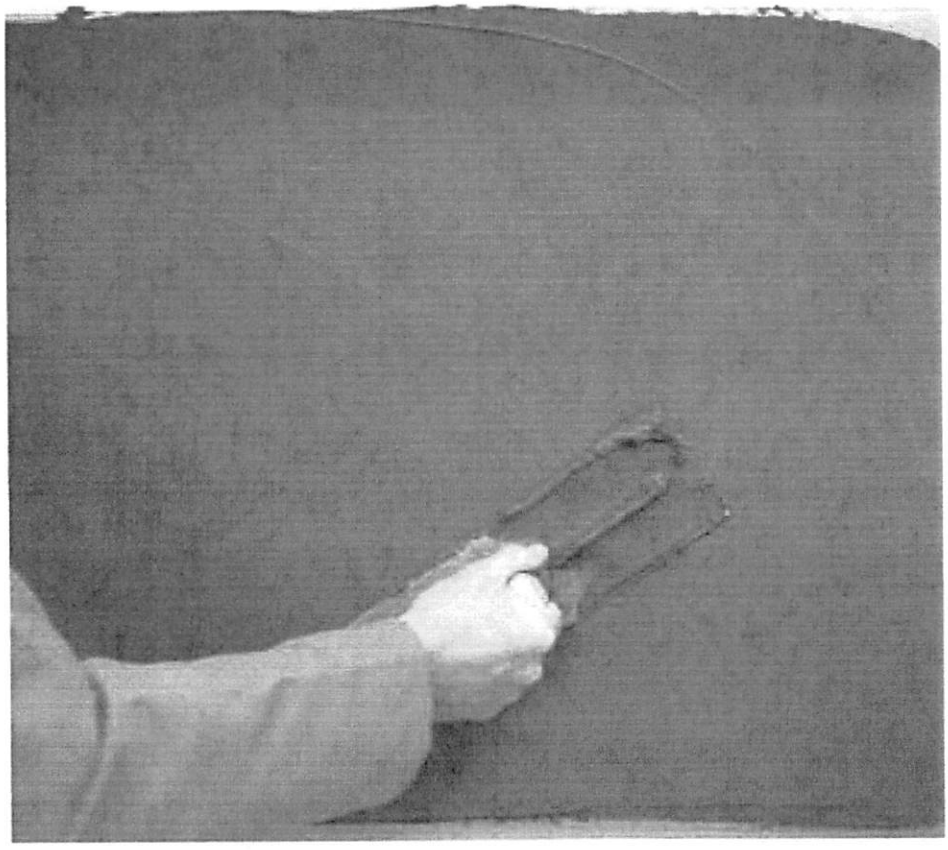
Sonneborn®
Waterproofing Systems

SONOSHIELD®

FLEXTIGHT™

Flexible cementitious waterproofing membrane



Where to Use Flextight™

- Concrete
- Masonry
- Walls and floors
- Tiled pools and fountains
- Plaza decks
- Balconies
- Utility rooms
- Boiler rooms
- Mechanical rooms

Features

- Waterproofs stable concrete or cementitious surfaces...
- Creates a flexible membrane...
- Breathable...
- Two-component kit ready for use...
- Low VOC...

Benefits

- Protects against soil moisture and water seepage
- Extends life of structural slabs and underlayments
- Accommodates substrate movement
- Excellent underlayment for thin-set tile applications
- Prevents cracks from telegraphing
- Resists delamination
- Easy to mix and place
- Environmentally friendly

How to Apply Flextight™

Surface Preparation

1. Substrates must be sound and level and the surface free from protrusions, large pores, honeycombs, gaping cracks, and ridges.
2. Sandblast or waterblast substrates to remove all traces of water repellents, bitumen, form oils, grease, paint, and other foreign matter from substrate that could act as a bondbreaker.
3. Any edges must be rounded. Coves are formed with regular site-mixed mortar and rounded to a minimum radius of 1-1/2" (38 mm).

Mixing

1. Flextight™ is supplied in precisely proportioned units ready for mixing. When using Flextight™ in cooler climates or if a thicker consistency is desired, reduce the amount of Part A (liquid) in the mixture by approximately 1 quart (0.9 L). First precondition material to 70°F ± 5° (21°C ± 2°) for easier mixing and application.
2. Slowly add Part B (powder) while mixing with a 3/4" drill and mixing paddle.
3. Mix to a smooth lump-free uniform consistency. If a looser consistency is desired, add the remaining portion of Part A liquid. Overmixing may entrap air.
4. Mix for 3 - 5 minutes while blending components, and 1 - 2 minutes after all components have been blended.
5. The pot life of Flextight™ is approximately 30 - 90 minutes depending on ambient conditions.

Application

1. The substrate must be saturated surface dry (SSD) with no standing water.
2. Flextight™ is applied only to the positive side (source of moisture) of the substrate in one or two void-free coats. Thoroughly work the material into the substrate. Make sure the rounded edges are fully coated. Apply at 80 wet mils, using a 1/8" (3 mm) square-notched trowel, yielding 60 dry mils (1/16" or 1.5 mm).
3. Embed fiberglass tape wherever dissimilar materials join. Also treat surface cracks less than 1/8" (3 mm) wide and areas where underlayment panels meet.
4. In most cases, one coat is sufficient without reinforcing mesh. If reinforcement is necessary, embed an appropriate mesh into the still-wet first coat and use a trowel to work the material up and through the mesh until it is completely embedded. Material that is too thick is subject to drying or shrinkage cracking. Be certain to cover all reinforcement material.
5. Smooth over with the flat trowel edge, creating a smooth, voidless membrane.

Curing Time

Prevent premature drying of the green application and protect it from extreme heat, direct sunlight, wind, rain, and frost for at least 3 days. (Curing time varies with humidity, temperature, and substrate porosity.) Tile can be applied after 3 days.

Do not allow surface to become wet before curing is complete. Protection boards may be needed to avoid puncturing membrane while installing tile.

Clean Up

Wash tools with water immediately after use. Cured material may only be removed mechanically.

For Best Performance

- Do not use as an adhesive to install ceramic tile or natural stone.
- This product is not recommended for application over lauan, presswoods, particle board, masonite, chipboard, plywood, asbestos board, or any other unstable materials.
- Flextight™ is not a vapor barrier.
- Use caution under extremely hot or windy conditions; will shorten the pot life and reduce trowelability. Call Sonneborn Technical Service for recommendations.
- Do not apply at temperatures below 40°F (4°C) or above 90°F (32°C).
- Allow coating to harden sufficiently (not less than 3 days) before tiling over it.
- Concrete substrates should be cured 28 days before Flextight™ application.
- Concrete substrates should be wet cured; remove any membrane curing compounds.
- Do not over trowel.
- Radiant-heated floors must not be in operation 24 hours before, during, or 72 hours after installation (follow Ceramic Tile Institute [CTI] recommendations for tiling over radiant heated floors).
- Do not puncture membrane while setting tiles.
- Do not dilute with water.
- If Flextight™ weathers for more than 28 days, a recoating is recommended to ensure adhesion of subsequent coatings or overlays.
- Do not add water or fresh mortar to Flextight™ that has already begun to set.
- Do not use additives of any kind.
- Do not apply thicker than 1/16" (1.5 mm).
- Two void-free coats are necessary when used for water containment.
- Allow two week's cure before submersion.
- Make certain the most current version of this data guide is being used; call Customer Service (1-800-433-9517) to verify the most current version.
- Proper application is the responsibility of the user. Field visits by Sonneborn personnel are for the purpose of making technical recommendations only, and are not to supervise or provide quality control on the job site.

Technical Data

Typical Properties

Powder	Fine aggregate and hydraulic cement and other proprietary additives; asbestos free
Liquid	Modified acrylic dispersion
Mixing ratio	1.75 gallons (6.6 L) Flextight™ liquid (Part A) to 32 lbs. (14.5 kg) Flextight™ powder (Part B) (3.2 gallons or 12.1 L total unit)
Working time (pot life)	Approximately 30 minutes
Time before tiling or overcoating	Minimum 72 hours

Test Data*

Property	Results	Test Method	Criteria
Adhesion to concrete, psi	85	ASTM C 297	
Tensile strength, psi	200	ASTM D 412	Without mesh
Elongation, %	50	ASTM D 412	Without mesh
Water absorption, %	10	ASTM D 570	
Waterproofing	Pass: Resisted 100 ft. positive hydrostatic head	28 days at 50 psi	Untreated substrate
Vapor permeability, dry perms	0.93	ASTM E 96	
Crack bridging	2 mm	CR-TM 41.1	
Adhesive pull off strength	350 psi	ASTM D 4541-A2	

*Technical data assumes 73°F (23°C) and 50% relative humidity.

Test results are averages obtained under laboratory conditions. Reasonable variations can be expected.

Order Information

Packaging

Flextight™

- 5 gallon (18.93 L) pail

Containing

- 1.75 gallons (6.62 L) of Part A liquid
- 32 lbs. (14.5 kg) Part B powder

Shelf life is typically 9 months if stored in unopened containers under normal conditions.

Keep Flextight™ Part A from freezing in the container; do not store below 35°F (1.7 °C).

Color

Gray and white

Coverage

- Approximately 80 sq. ft. (7.4 m^2) per Flextight™ kit. Coverage may vary due to substrate condition and application procedure.

Caution

Flextight™ Part A liquid contains petroleum oil

Risks

Product is alkaline on contact with water and may cause injury to skin or eyes. Ingestion or inhalation of dust may cause irritation. Contains small amount of free respirable quartz which has been listed as a suspected human carcinogen by NTP and IRAC. Repeated or prolonged overexposure to free respirable quartz may cause silicosis or other serious and delayed lung injury.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes and clothing. Prevent inhalation of dust. Wash thoroughly after handling. DO NOT take internally. Use only with adequate ventilation. Use impervious gloves, eye protection and if the TLV is exceeded or if used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state, and local regulations.

First Aid

In case of eye contact, flush affected area thoroughly with water at least 15 minutes. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION. Should vomiting occur, be sure to keep victim's head below hips to avoid aspiration of vomitus into the lungs.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product contains materials listed by the state of California as known to cause cancer, birth defects, or other reproductive harm.

VOC Content

Liquid - 6 g/L or 0.5 lbs. per gallon less water and exempt solvents.

Caution

Flextight™ Part B powder contains Portland cement, silicon dioxide

Risks

Prolonged contact may cause drying and redness of skin. Inhalation of vapors may cause headache, dizziness and nausea. Ingestion may cause irritation of mouth, throat and stomach with nausea and abdominal pain. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes and clothing. Prevent inhalation of dust. Wash thoroughly after handling. DO NOT take internally. Use only with adequate ventilation. Use impervious gloves, eye protection and if the TLV is exceeded or if used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state, and local regulations.

First Aid

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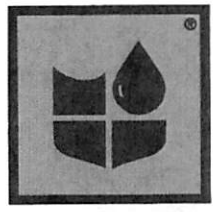

Sonneborn®

ChemRex Inc.

889 Valley Park Drive; Shakopee, MN 55379

Manufacturing Plants: Minneapolis, MN; Fort Wayne, IN; Mattawan, MI; Brighton, CO.

Regional Warehouses: DeKalb, IL; Atlanta, GA; Hayward, CA; Fairfield, NJ; Dallas, TX; Ontario, CA; Brighton, CO; Brampton, ONT (Canada).

Form No. SC-279

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Warning

NP 1™ (all colors) contains mineral spirits, calcium oxide, talc, calcium carbonate, titanium dioxide, silicon dioxide.

Risks

May cause skin, eye and respiratory irritation. May cause dermatitis and allergic responses. Potential skin and/or respiratory sensitizer. Ingestion may cause irritation. Reports associate repeated or prolonged occupational overexposure to solvents with permanent brain, nervous system, liver and kidney damage. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Use only with adequate ventilation. Keep container closed. Prevent contact with skin, eyes and clothing. Wash thoroughly after handling. DO NOT take internally. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. All label warnings must be observed until container is commercially cleaned or reconditioned.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product contains materials which have been listed by the state of California as known to cause cancer, birth defects or other reproductive harm.

VOC Content

NP 1™ contains 81.6 g/L or 0.66 lbs. per gallon, less water and exempt solvents.

For medical emergencies only, call ChemTrec (1/800/424-9300)

Customer Service: 1/800/433-9517
Technical Services: 1/800/ChemRex (1/800/243-6739)
Web Site: www.chemrex.com

Sonneborn
ChemRex Inc.
889 Valley Park Drive, Shakopee, MN 55379

Manufacturing Plants: Newark, CA; Denver, CO; Centerville, IN; Fort Wayne, IN; Mattawan, MI; Bloomington, MN; Bristol, PA.

Regional Warehouses: Hayward, CA; Ontario, CA; Atlanta, GA; Chicago Heights, IL; Fairfield, NJ; Brampton, ONT (Canada); Grand Prairie, TX.

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SONOLASTIC®

NP 1™

One-component elastomeric gun-grade polyurethane sealant

Where to Use NP 1™

- Concrete
- Masonry
- Aluminum
- Wood
- Expansion wall joints
- Curtain wall construction
- Panel walls
- Precast units
- Aluminum and wood window frames
- Fascia
- Parapets
- Structural components
- Vinyl siding
- Interior and exterior

Features

- Joint movement capability ± 25%
- Available in cartridges, 20 ounce ProPaks, and bulk
- Easy to gun and tool
- Ten standard colors
- Bonds to most construction materials without a primer
- One component
- Weather resistant
- Wide temperature application range
- Compatible with nonrigid paints
- UL listed

Benefits

- Excellent flexibility for keeping moving joints tight
- Reduces job-site waste, lowers disposal costs
- Speeds application and makes neater joints
- Matches common substrates
- Lowers installation costs
- No mixing, less labor
- Long-lasting weathertight seals
- Suitable for all climates
- Paintable
- Passes 4 hour 4 inch fire and hose stream test when used with Ultra Block®

How to Apply NP 1™

Joint Preparation

1. The number of joints and the joint width should be designed for a maximum of ±25% movement.
2. The depth of the sealant should be 1/2 the width of the joint. The maximum depth is 1/2" (13 mm) and the minimum is 1/4" (6 mm).
3. In deep joints, the sealant depth must be controlled by Closed Cell Backer-Rod or Soft Backer-Rod. (Refer to Form Nos. SJ-403 and SJ-405.) Where the joint depth does not permit the use of backer-rod, a bondbreaker (polyethylene strip) must be used to prevent three-point bonding.
4. To maintain the recommended sealant depth, install backer rod by compressing and rolling it into the joint channel without stretching it lengthwise. Closed Cell Backer-Rod should be about 1/8" (3 mm) larger in diameter than the width of the joint to allow for compression. Soft Backer-Rod should be approximately 25% larger in diameter than the joint width. Backer-Rod becomes an integral part of the joint. The sealant does not adhere to it, and no separate bondbreaker is required. Do not prime or puncture the backer-rod.

Surface Preparation

Surfaces must be structurally sound, fully cured, dry, clean, free of dirt, moisture, loose particles, oil, grease, asphalt, tar, paint, wax, rust, waterproofings, curing and parting compounds, and membrane materials.

Concrete, stone, and other masonry
Clean by grinding, sandblasting, or wire brushing to expose a sound surface free of contamination and laitance.

Wood
New and weathered wood must be clean and sound. Scrape away paint to bare wood. Any coating that cannot be removed must be tested to verify adhesion of sealant or determine an appropriate primer.

Metal
Remove scale, rust, and coatings from metal to expose a bright white surface. Remove protective coatings as well as any chemical residue or film. Aluminum window frames are frequently coated with a clear lacquer that must be removed before the application of NP 1™. Any coating that cannot be removed must be tested to verify adhesion of sealant or determine an appropriate primer. Remove any other protective coatings or finishes that could interfere with adhesion.

Priming

1. NP 1™ is generally considered a non-priming sealant, but special circumstances or substrates (e.g., certain protective coatings on aluminum) may require a primer. It is the user's responsibility to check the adhesion of the cured sealant on typical test joints at the project site before and during application. Refer to Technical Data Guide on Primer 733 or 766 (Form No. SW-431), and consult Sonneborn Technical Services for additional information.
2. Apply primer full strength with a brush or clean cloth. A light, uniform coating is sufficient for most surfaces. Porous surfaces require more primer; however, do not overapply.
3. Allow primer to dry before applying NP 1™. Depending on temperature and humidity, primer will be tack free in 15 to 120 minutes. Priming and sealing must be done on the same work day.

Application

1. NP 1™ comes ready to use. Apply by professional caulking gun. Do not open cartridges, sausages, or pails until preparatory work has been completed.
2. Fill joints from the deepest point to the surface by holding a properly sized nozzle against the back of the joint.
3. Dry tooling is recommended. DO NOT use soapy water when tooling. Tooling results in the correct bead shape, a neat joint, and maximum adhesion.

Clean Up

1. Immediately after use, clean equipment with Reducer 990 or xylene. Use proper precautions when handling solvents.
2. Remove cured sealant by cutting with a sharp-edged tool.
3. Remove thin films by abrading.

Curing Time

The cure of NP 1™ varies with temperature and humidity. The following times assume 75°F (24°C), 50% relative humidity and a joint 1/2" width by 1/4" depth (13 mm by 6 mm).

- Skins overnight or within 24 hours
- Functional within 3 days
- Full cure in approximately 1 week

For Best Performance

- Protect unopened containers from heat and direct sunshine.
- In cool or cold weather, store container at room temperature for at least 24 hours before using.
- NP 1™ should not be used for continuous immersion in water. Call Sonneborn Technical Services for recommendations.
- Do not apply over freshly treated wood. treated wood must have weathered for at least 6 months.
- Substrates such as copper, stainless, and galvanized typically require the use of a primer; Primers 733 or 766 are acceptable. For Kynar coating use Primer 733 only. An adhesion test is recommended for any other questionable substrate.
- U.V. exposure may cause white NP 1™ to discolor, where maintaining a true white appearance is critical, use Ultra sealant (See Form No. SJ-444).
- NP 1™ can be applied below freezing temperatures only if substrates are completely dry, free of moisture, and clean.
- Lower temperatures will extend curing times.
- NP 1™ should not come in contact with oil-base caulking, silicone sealants, polysulfides, or fibers impregnated with oil, asphalt, or tar.
- Make certain the most current version of this data guide is being used. call Customer Service (1-800-433-9517) to verify the most current version.
- NP 1™ can be painted over provided it is fully cured. When painting over any elastomeric sealant, use a paint that is also elastomeric. (If movement occurs, the paint will also move.) An alternative to painting is applying NP 1™ in one of its standard colors.
- Proper application is the responsibility of the user. Field visits by ChemRex Inc. personnel are for the purpose of making technical recommendations only and are not to supervise or provide quality control on the job site.
- Do not allow uncured sealants to come into contact with alcohol-based materials or solvents.
- Do not apply polyurethane sealants in the vicinity of uncured silicone sealants.

Technical Data

Compliances

- Federal Specification TT-S-00230C, Type II, Class A
- ASTM C 920, Type S, Grade NS, Class 25, Use NT, M, A, G, and O
- Corps of Engineers CRD C 541, Type II, Class A
- Canadian Specification CAN/CGSB-19.13-M87, Classification MCG-2-25-A-N, No. 81026
- USDA approved for use in meat and poultry areas
- Underwriters Laboratories Inc.® classified (fire resistance only)
- Canadian approval for use in establishments that handle food
- SWRI validated
- ISO 11600 F-25LM

Typical Properties

Property	Result
Service temperature range, °F (°C)	-40 (-40) to 180 (82)
Expected life	Up to 20 years
Shrinkage	None

Test Data

Property	Value (Average)	Test Method
Movement capability, %	± 25	ASTM C 719
Tensile strength, psi	350	ASTM D 412
Ultimate elongation at break, %	1,000	ASTM D 412
Rheological (sag in vertical displacement) at 120°F (49°C)	No sag	ASTM C 639
Extrudability, 5 seconds	Passes	ASTM C 603
Hardness at std. conditions	25 - 30	ASTM C 661
Weight loss, after heat aging, %	<10	ASTM C 792
Cracking and chalking after heat aging	None	ASTM C 792
Tack-free time, hrs., (maximum 72 hrs.)	Passes	ASTM C 679
Stain and color change (no visible stain)	Passes	ASTM C 510
Hardness, after heat aging, max. Shore A 50	29	ASTM C 661
Bond durability on glass, aluminum, and concrete, ± 25% movement	Passes	ASTM C 719
Adhesion* in peel, pli, min. 5 pli	30	ASTM C 794
Adhesion* in peel after UV radiation (through glass), min. 5 pli	Passes	ASTM C 794
Artificial weathering Xenon arc, 3,000 hours	No elastomeric property change	Atlas 6500
Tear strength, pli	50	ASTM D 1004

*Primed for water immersion as indicated in ASTM C 920. Concrete and aluminum primed with 733, glass primed with 766.

†Test results are averages obtained under laboratory conditions. Reasonable variations can be expected.

Order Information

Packaging

NP 1™

- 300 mL cartridges, 30 cartridges to a carton
- 20 U.S. fl. oz. (590 mL) ProPak sausage cartridges, 20 ProPaks to a carton
- 4.5 gallons (17.0 L) in 5 gallon pails (18.93 L) available in special orders only

For color availability in bulk packaging, call Customer Service.

Shelf life is 1 year for cartridges and ProPaks and 4 months for pails when stored in unopened containers under normal conditions. Storing at elevated temperatures will reduce shelf life.

Colors

A complete line of standard colors is available, including white, off-white, limestone, stone, tan, aluminum gray, medium bronze, special bronze, redwood tan, and black.

Coverage

Linear Feet per Gallon*

Joint depth (inches)	Joint width (inches) 1/4	3/8	1/2	5/8	3/4	7/8	1
1/4	308	205	154	122			
3/8				82	69	58	51
1/2					51	44	38

*One gallon equals approximately 12 cartridges or 6 ProPaks.

Meters per Liter

Joint depth (mm)	Joint width (mm) 6	10	13	16	19	22	25
6	24.8	16.5	12.4	9.8			
10				6.6	5.5	4.7	4.1
13					4.1	3.5	3.0

Warning

NP 2™ Part A contains calcium carbonate, toluene diisocyanate, trimethyl benzene, naphtha light aromatic, titanium dioxide

Risks
May cause skin and eye irritation. May cause dermatitis and allergic responses. Potential skin and/or respiratory sensitizer. Inhalation may cause irritation and intoxication with headaches, dizziness and nausea. Ingestion may cause irritation. Reports associate repeated or prolonged occupational overexposure to solvents with damage to brain, nervous system, liver or kidneys. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions
KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes and clothing. Wash thoroughly after handling. Use only with adequate ventilation. DO NOT take internally. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. Keep container closed when not in use. Empty container may contain hazardous residues. All label warnings must be observed until container is commercially cleaned or reconditioned.

First Aid
In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65
This product contains materials listed by the state of California as known to cause cancer, birth defects, or other reproductive harm.

VOC Content
53 g/L or 0.44 lbs/gal less water and exempt solvents.

Warning

NP 2 Part B contains toluene diisocyanate mix

Risks
May cause skin, eye, or respiratory irritation. May cause dermatitis and allergic reactions. Potential skin and respiratory sensitizer. Ingestion may cause irritation.

Precautions
KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes, and clothing. Wash thoroughly after handling. DO NOT take internally. Ingestion may cause irritation. Use only with adequate ventilation. Inhalation may cause irritation. Keep container closed. Use impervious gloves, eye protection, and if the TLV is exceeded or if used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state, and local regulations.

First Aid
In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65
This product contains materials which are known to the state of California as known to cause cancer, birth defects, or other reproductive harm.

VOC Content
8.09 g/L or 0.07 lbs. per gallon, less water and exempt solvents.

Warning

NP 2™ Accelerator contains mineral oil, 2-ethylhexanoic acid

Risks
May cause skin, eye or respiratory irritation. May be absorbed through the skin. May cause dermatitis and allergic reactions. Ingestion may cause irritation. Repeated or prolonged absorption may affect the kidneys.

Precautions
KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes and clothing. Wash thoroughly after handling. DO NOT take internally. Use only with adequate ventilation. Inhalation may cause irritation. Keep container closed. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations.

First Aid
In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65
This product does not knowingly contain materials which are known to the state of California as known to cause cancer, birth defects, or other reproductive harm.

VOC Content
0 g/L or 0 lbs per gallon less water and exempt solvents.

For medical emergencies only, call ChemTrec (1/800/424-9300)

Customer Service: 1/800/433-9517
Technical Services: 1/800/ChemRex (1/800/243-6739)
Web Site: www.chemrex.com

Sonneborn
ChemRex Inc.
889 Valley Park Drive, Shakopee, MN 55379

Manufacturing Plants: Newark, CA; Denver, CO; Centerville, IN; Fort Wayne, IN; Mattawan, MI; Bloomington, MN; Bristol, PA

Regional Warehouses: Hayward, CA; Ontario, CA; Atlanta, GA; Chicago Heights, IL; Fairfield, NJ; Brampton, ONT (Canada); Grand Prairie, TX

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Sonneborn
Sealant Systems

SONOLASTIC®

NP 2™

Multiple-component high-performance polyurethane sealant

Where to Use NP 2™

- Concrete
- Masonry
- Aluminum
- Glass
- Marble
- Granite
- Brick
- Stucco
- Stone
- Expansion wall joints
- Curtain walls
- Panel walls
- Precast units
- Perimeter window caulking
- Exterior insulation walls
- Tilt-up panel joints
- Vinyl siding
- Interior and exterior

Features

- Elastomeric, movement capability of ±50%...
- Extraordinary adhesion...
- Resistant to weather, airborne pollutants, and chemicals...
- NP 2™ accelerator available...
- Excellent gunability over a broad temperature range...
- Rainbow of Colors® book available...
- Nonstaining...
- UL listed...

Benefits

- Withstands modern joint design parameters
- No primer on many construction materials
- Long-lasting performance on all applications
- Use for cold climate applications, speeds initial cure
- Speeds application
- Over 455 custom colors possible
- Use where aesthetics are a primary concern
- Passes 4 hour 4 inch fire and hose stream test when used with Ultra Block®

How to Apply NP 2™

Joint Preparation

- The number of joints and the joint width should be designed for a maximum of ±25% movement.
- The depth of the sealant should be 1/2 the width of the joint. The maximum depth is 1/2" (13 mm) and the minimum is 1/4" (6 mm).
- In deep joints, the sealant depth must be controlled by Closed Cell Backer Rod or Soft Backer Rod (Refer to Form Nos. SJ-403 and SJ-405.) Where the joint depth does not permit the use of backer rod, a bondbreaker (polyethylene strip) must be used to prevent three point bonding.
- To maintain the recommended sealant depth, install backer rod by compressing and rolling it into the joint channel without stretching it lengthwise. Closed Cell Backer Rod should be about 1/8" (5 mm) larger in diameter than the width of the joint to allow for compression. Soft Backer Rod should be approximately 25% larger in diameter than the joint width. Backer Rod becomes an integral part of the joint. The sealant does not adhere to it, and no separate bondbreaker is required. Do not prime or puncture the backer rod.

Surface Preparation

Surfaces must be structurally sound, fully cured, dry, clean, free of wet moisture, loose particles, oil, grease, asphalt, tar, paint, wax, rust, waterproofings, curing and parting compounds, and membrane materials.

Concrete, stone, and other masonry

Clean by grinding, sandblasting or wire brushing to expose a sound surface free of contamination and laitance.

Wood

New and weathered wood must be clean and sound. Scrape away paint to bare wood. Any coating that cannot be removed must be tested to verify adhesion of sealant or determine an appropriate primer.

Metal

Remove scale, rust, and coatings from metal to expose a bright white surface. Remove protective coatings as well as any chemical residue or film. Aluminum window frames are frequently coated with a clear lacquer that must be removed before the application of NP 2™. Any coating that cannot be removed must be tested to verify adhesion of sealant or determine an appropriate primer. Remove any other protective coatings or finishes that could interfere with adhesion.

Priming

- NP 2™ is generally considered a non-priming sealant, but special circumstances or substrates (e.g., certain protective coatings on aluminum) may require a primer. It is the user's responsibility to check the adhesion of the cured sealant on typical test joints at the project site before and during application. Refer to Technical Data Guide on Primer 733 or 766 (Form No. SW 4531), and consult Sonneborn Technical Services for additional information.
- Apply primer full strength with a brush or clean cloth. A light, uniform coating is sufficient for most surfaces. Porous surfaces require more primer, however, do not overapply.
- Allow primer to dry before applying NP 2™. Depending on temperature and humidity, primer will be dry 1 hour to 16 hours. Priming and sealing must be done on the same work day.

Mixing

- NP 2™ is a two-component system and must be thoroughly mixed before use. The oversize Part A container allows for the addition and mixing of Part B and color pigment into Part A.
- Transfer entire contents of Part B to Part A container using a spatula or margin trowel.
- It is imperative that Part B be mixed thoroughly with Part A. Before adding pigment, scrape sides of container to ensure complete mixing of Parts A and B.

With a slow-speed drill and a sealant mixing paddle, mix 4 - 6 minutes. The paddle blade must be kept below the surface of the sealant to avoid whipping air into the sealant.

- Transfer the entire contents of the pigment can into the mixed Part A and B. Use a spatula or knife to remove all the pigment from the container. Continue mixing with a slow speed (500 - 600 rpm) drill and slotted paddle until color is uniform. During the process, the sides and bottom of the container must be scraped several times to obtain a complete mix.
- The pot life of mixed NP 2™ is influenced by temperature. See Table 1 for specific data. NP 2™ accelerator may be added to shorten the install cure rate.

Application

- Except when unusual job conditions dictate the use of knife or spatula, NP 2™ is applied by professional bulk gun loaded at the job site. Joints should be filled from the bottom up to the exterior face by holding a properly sized nozzle against the joint bottom.
- Proper tooling ensures the correct bead configuration and a neat joint. Equally important, it ensures maximum adhesion to the sides of the joint. For best results, dry tool or dampen tool with Reducer 900. DO NOT use water or soapy water to tool. Avoid overtooling of sealant.
- Field experience recommends that all caulking and sealing be done when temperatures are above 40°F (4°C) to avoid application to moisture-laden surfaces. Moisture on substrates will adversely affect adhesion.

Application may proceed as low as 20°F (-6°C) if there is certainty that substrates are completely dry, free of moisture, and clean as described under Surface Preparation.

- **Horizontal surfaces.** Use Sonneborn self-leveling or slope-grade sealants SL 1™ or SL 2™. Priming is required on all horizontal applications. For joints subject to puncture by high heels or umbrella points, a 1/8" or high density backing material is required. Cork or ridged non-impregnated cane-fiber joint fillers are suitable. Do not use open cell backer-rods on horizontal applications.

Clean Up

Immediately after use and before sealant has cured, clean equipment with Reducer 900 or xylene. Cured sealant may be removed by cutting with a sharp-edged tool. Thin films by abrading.

Curing

- NP 2™ cures by a chemically controlled reaction. Initial cure is within 24 hours, and complete cure takes approximately 7 days. Cure rates are dependent on temperature and humidity.
- The initial cure rate of NP 2™ can be adjusted for seasonal and geographic climatic conditions. See Table 1 for use of accelerator.

Table 1

	Working Times, hours		
	Standard conditions (73°F or 23°C, 50% relative humidity)	Higher temp (95°F or 35°C, 75% to 80% relative humidity)	Colder temperatures (40°F or 4°C)
No accelerator	6 - 8	5 5 - 4 5	8 - 9
1 accelerator	2 - 3	1 - 1 5	3 5 - 4
2 accelerators	1 - 1.5	Less than 1	2 - 2 5

For Best Performance

- Do not open containers until ready for use.
- Joints are premeasured; do not use partial units.
- NP 2™ should not come in contact with oil base caulking, silicone sealants, polysulfides, or fibers impregnated with oil, asphalt, or tar.
- NP 2™ may yellow in the presence of unvented artificial heat; this is a surface phenomenon that does not affect sealant performance.
- NP 2™ should not be used for continuous immersion in water. Call Sonneborn Technical Services for recommendations.
- Do not allow uncured sealants to come into contact with acrylic-based materials or solvents.
- Do not apply epoxy based coatings in the vicinity of uncured NP 2™.
- Do not apply polyurethane sealants in the vicinity of uncured silicone sealants.
- Substrates such as copper, stainless, and galvanized typically require the use of a primer. Primers 733 or 766 are acceptable. For metal coating use Primer 733 only. An adhesion test is recommended for any other questionable substrate.
- Make certain the most current version of this data guide is being used. Call Customer Service (1-800-433-9517) to verify the most current version.
- Proper application is the responsibility of the user. Field visits by ChemRex Inc. personnel are for the purpose of making technical recommendations only and are not to supervise or provide quality control on the job site.

Technical Data

Compliances

- Federal Specification TT-S-00227E, Type II, Class A
- Corps of Engineers CRD C 506
- ASTM C 920, Type M, Grade NS, Class 25, use NT, G, A, M, and O
- Canadian Standards Board CAN/CSSB 19.24-M90 Classification MCG 2-40-A-N, No. 81023
- Canadian approval for use in establishments that handle food
- USDA approval for use in meat and poultry areas
- Underwriters Laboratories Inc.® classified (fire resistance only). Refer to Form No. SJ-411.1
- SWRI validated

Test Data

Table 2

Typical Property	Value*	Test Method
Tensile strength, psi	150	ASTM D 412
Ultimate elongation at break, %	300	ASTM D 412
Stain and color change (no visible stain)	Passes	ASTM C 510
Extrusion rate, seconds	Passes	ASTM C 603
3 hrs. after mixing	6	
Rheological (flow) at 120°F (49°C)	Non sag	ASTM C 639
Hardness at standard conditions, shore A	25	ASTM C 661
Hardness after heat aging (maximum shore A 50)	22	ASTM C 661
Tack-free time, hrs., (maximum 72 hrs.)	< 48 hours	ASTM C 679
100% Modulus, psi	60	ASTM D 412
Bond durability*, %, on glass, aluminum, and concrete	≥ 25	ASTM C 719
Weight loss after heat aging, %	4 7	ASTM C 792
Service temperature range, °F (°C)	-40 to 180 (-40 to 82)	
Cracking and chalking after heat aging	None	ASTM C 792
Artificial weathering Xenon arc, 250 hours	Passes	ASTM C 793
Artificial weathering Xenon arc, 2,000 hours	No surface cracking	Xenon arc
Adhesion in peel on glass, aluminum, and concrete*, pli	>10	ASTM C 794
Adhesion in peel * after UV radiation through glass	>10	ASTM C 794

* Primed for water immersion as indicated in ASTM C 920. Concrete and aluminum primed with 733, glass primed with 766.

Test results are averages obtained under laboratory conditions. Reasonable variations can be expected.

Order Information

Packaging

NP 2™

- 1-1/2 gallon unit in 2 gallon pail (5.67 liters)
- 5 gallon unit in 5-1/2 gallon pail (11.5 liters)

Available in premixed colors: Precast Gray, Limestone

- 1-1/2 gallon unit in 2 gallon pail (5.67 liters)
- 5 gallon unit in 5-1/2 gallon pail (11.5 liters)

Minimum order is 1 pallet.

Shelf life is 1 year when stored in unopened containers under normal conditions.

Colors

All standard stocked colors are available. Refer to the Rainbow of Color® popular palette, Form No. SP-041.

455 standard (non-stocked) colors are also available, and custom matching can be done upon request. Refer to the Rainbow of Colors® book.

Coverage

Table 3

Linear Feet per Gallon

Joint Depth (inches)	Joint Width (inches) 1/4	3/8	1/2	5/8	3/4	7/8	1
1/4	308	205	154	122			
3/8				82	68	58	51
1/2					51	44	38

Meters per Liter

Joint Depth (mm)	Joint Width (mm) 6	10	13	16	19	22	25
6	24.8	16.5	12.4	9.8			
10				6.6	5.5	4.7	4.1
13					4.1	3.5	3.0

Warning

SL 2™ Part A contains calcium carbonate, high-flash naphtha, 1,2,4-trimethyl benzene, toluene diisocyanate, silicon dioxide, titanium dioxide.

Risks

Combustible liquid and vapor. May cause skin and eye irritation. May cause dermatitis and allergic responses. Potential skin and/or respiratory sensitizer. Inhalation of vapors may cause irritation and intoxication with headaches, dizziness and nausea. Ingestion may cause irritation. Reports associate repeated or prolonged occupational overexposure to solvents with permanent brain, nervous system, liver and kidney damage. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. KEEP AWAY FROM HEAT, FLAME AND SOURCES OF IGNITION. Keep container closed when not in use. Use only with adequate ventilation. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling. Avoid breathing vapors. DO NOT take internally. Use impervious gloves, eye protection and if the TLV is exceeded or product is used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. Empty container may contain explosive vapors or hazardous residues. All label warnings must be observed until container is commercially cleaned or reconditioned.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product contains material listed by the state of California as known to cause cancer, birth defects or other reproductive harm.

VOC Content

When mixed, product contains less than 64.6 g/L less water and exempt solvents.

Warning

SL 2™ Part B contains toluene diisocyanate.

Risks

May cause eye, skin or respiratory irritation. May cause dermatitis and allergic reactions. Potential skin and/or respiratory sensitizer.

Precautions

Prevent contact with skin, eyes or clothing. Wash thoroughly after handling. DO NOT take internally. Ingestion may cause irritation. Use only with adequate ventilation. Keep container closed. Inhalation may cause irritation. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. All label warnings must be observed until container is commercially cleaned or reconditioned.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, SEEK IMMEDIATE MEDICAL ATTENTION. If swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product contains materials listed by the state of California as known to cause cancer, birth defects, or other reproductive harm.

VOC Content

8.09 g/L or 0.07 lbs/gal less water and exempt solvents.

Warning

SL 2™ Accelerator contains toluene diisocyanate mix.

Risks

May cause skin, eye or respiratory irritation. May be absorbed through skin. May cause dermatitis and allergic reactions. Ingestion may cause irritation. Repeated or prolonged absorption may affect kidneys.

Precautions

KEEP OUT OF THE REACH OF CHILDREN. Prevent contact with skin, eyes and clothing. Wash thoroughly after handling. DO NOT take internally. Ingestion may cause irritation. Use only with adequate ventilation. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. All label warnings must be observed until container is commercially cleaned or reconditioned.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product contains materials which are known to the state of California to cause cancer, birth defects, or other reproductive harm.

VOC Content

0 g/L or 0 lbs per gallon less water and exempt solvents.

For medical emergencies only, call ChemTrec (1/800/424-9300)

Customer Service: 1/800/433-9517
Technical Services: 1/800/ChemRex (1/800/243-6739)
Web Site: www.chemrex.com

Limited Warranty Notice

Every reasonable effort is made to apply ChemRex Inc. exacting standards both in the manufacture of our products and in the information which we issue concerning these products and their use. We warrant our products to be of good quality and will replace or, at our election, refund the purchase price of any products proved defective. Satisfactory results depend not only upon quality products, but also upon many factors beyond our control. Therefore, except for such replacement or refund, CHEMREX INC. MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, RESPECTING ITS PRODUCTS, and CHEMREX INC. shall have no other liability with respect thereto. Any claim regarding product defect must be received in writing within one (1) year from the date of shipment. No claim will be considered without such written notice or after the specified time interval. User shall determine the suitability of the products for the intended use and assume all risks and liability in connection therewith. Any authorized change in the printed recommendations concerning the use of our products must bear the signature of the ChemRex Inc. Technical Manager.

Sonneborn
ChemRex Inc.

889 Valley Park Drive, Shakopee, MN 55379

Manufacturing Plants: Newark, CA; Denver, CO; Centerville, IN; Fort Wayne, IN; Mattawan, MI; Bloomington, MN; Bristol, PA

Regional Warehouses: Hayward, CA; Ontario, CA; Atlanta, GA; Chicago Heights, IL; Fairfield, NJ; Brampton, ONT (Canada); Grand Prairie, TX

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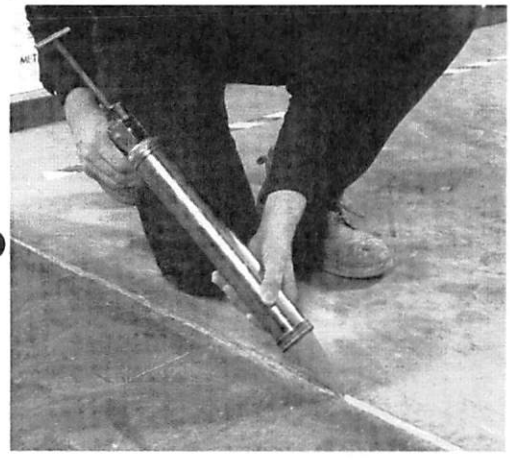
Sonneborn
Sealant Systems

SONOLASTIC®

SL 2™

Self-leveling and slope-grade elastomeric polyurethane sealant for horizontal joints



Where to Use SL 2™

- Concrete expansion joints
- Metal expansion joints
- Interior or exterior
- Sidewalks
- Pavements
- Decks
- Parking ramps
- Precast double T's
- Cantilever decks
- Warehouses
- Balconies
- Industrial applications

Features

- Movement capability ±25%...
- Abrasion resistant...
- Resists penetration...
- Resilient...
- Service range from -40°F to 180°F (-40°C to 82°C)...
- Resistant to weathering and aging...
- Available in custom colors...
- Self-leveling and slope grade...

Benefits

- Expands and contracts with joint movement
- Handles pedestrian and vehicular traffic
- Withstands pressure from pointed objects
- Resists permanent deformation
- Suitable for all climates
- Long performance
- Can be color matched to any substrate
- Versatility in applications

How to Apply SL 2™

Joint Preparation

1. The number of joints and the joint width should be designed for a maximum of ±25% movement.

2. The depth of the sealant should be 1/2 the width of the joint. The maximum depth is 1/2" (13 mm) and the minimum is 1/4" (6 mm).

3. In deep joints, the sealant depth must be controlled by Closed-Cell Backer-Rod or Soft Backer-Rod. (Refer to Form Nos. SJ-405 and SJ-405.) Where the joint depth does not permit the use of backer-rod, a bondbreaker (polyethylene strip) must be used to prevent three-point bonding.

4. To maintain the recommended sealant depth, install backer-rod by compressing and rolling it into the joint channel without stretching it lengthwise. Closed-Cell Backer Rod should be about 1/8" (3 mm) larger in diameter than the width of the joint to allow for compression. Soft Backer-Rod should be approximately 25% larger in diameter than the joint width. Backer-Rod becomes an integral part of the joint. The sealant does not adhere to it, and no separate bondbreaker is required. Do not prime or puncture the backer-rod.

Surface Preparation

1. It is essential that joints be clean and dry. Joint surfaces must be structurally sound, fully cured, and free of all loose aggregate, paint, oil, grease, asphalt, wax, mastic compounds, waterproofing compounds, form release materials, curing compounds or any other contaminants.

2. **New concrete:** Remove all loose material from joints by wire brushing. Sandblast surfaces in contact with form release agents. Fresh concrete must be fully cured. (Latance must be removed by abrading.)

3. **Old concrete.** For previously sealed joints, remove all old material by mechanical means. If joint surfaces have absorbed oils, remove sufficient concrete to ensure a clean surface.

Priming

1. Joint surfaces must be primed with Primer 733 or 766 (see Form No. SL-451) before sealing. If the surfaces are other than masonry or concrete, test first to determine adhesion. Technical assistance is available from Sonneborn.

2. Apply primer in a thin, uniform film. Avoid buildup of film.

3. Allow approximately 15-120 minutes drying time before applying sealant. (Primer should be tack free.) Sealant must be applied same day as primer.

4. To minimize contamination of adjacent surfaces, apply masking tape and remove before sealant has begun to thicken and set.

Mixing

1. SL 2™ is a two-component system and must be thoroughly mixed before use. The oversize base container allows for the addition and mixing of Part B and color pigment into Part A.

2. **1-1/2 gallon (5.67 L) unit:** (1) Transfer Part B to Part A container using a spatula or knife. It is imperative that the entire contents of Part B be combined with Part A. (2) With a slow-speed drill and a sealant mixing paddle, thoroughly mix 2 - 3 minutes. The paddle blade must be kept below the surface of the sealant to avoid whipping in air. (3) Transfer the contents of the pigment can into the mixed Part A and B. Use a spatula or knife, removing the entire contents to ensure consistent color. (4) Continue mixing with a slow speed drill and sealant paddle until color is uniform. During the process, scrape the sides and bottom of the Part A container can and the paddle itself several times.

3. **3 gallon (11.37 L) unit:** Use 2 Part B and 2 pigment containers for each Part A container. Mix as instructed under 1-1/2 gallon (5.7 L) unit.

4. Pot life of the sealant is dependent upon temperature. See Table 1 for specific data.

Table 1

	Working Times	
	Standard Conditions 73°F (23°C)	Colder Temperatures 40°F (4°C)
No accelerator	1-1/2 to 2 hours	4-1/2 to 5-1/2 hours
1 accelerator	30 minutes to 45 minutes	1-1/2 to 2 hours
2 accelerator	30 minutes to 45 minutes	1-1/2 to 2 hours
3 accelerator	—	45 minutes to 1 hour

Application

1. All caulking and sealing should be performed when temperatures are above 40°F (4°C); any moisture or frost on surfaces will adversely affect adhesion.

2. Ideally, the temperature at the time of application should be the median of temperature extremes when the joint width opening is at its midpoint.

3. Fill joints from the bottom, avoid bridging of the joint, which may form air voids.

4. For large joints, the self-leveling grade may be poured directly from the can.

5. For smaller joints and for all slope grade applications, fill the joint by flowing the sealant from a bulk-loading gun.

6. Light tooling of the slope-grade sealant is recommended to smooth out ripples. On sloped surfaces, tool from the lowest point to the highest. Do not use soap or solvent.

Clean Up

1. Immediately after use and before sealant has cured, clean equipment with Reducer 990 or xylene.

2. The cured sealant may be removed by cutting with a sharp-edged tool, thin films by abrading.

Curing

Cure time will vary with humidity and temperature. Initial cure is within 24 hours and complete cure takes approximately 7 days. Cure rates are dependent on temperature and humidity.

Protect joint from dirt and traffic until cured.

For Best Performance

- SL 2™ is not intended for immersion or for use in areas of high chlorine concentration such as swimming pools.
- Backer-rods, joint fillers, or bondbreakers must be tight to the sides of the joint to prevent loss of sealant through the bottom.
- For joints subject to puncture by high heels or umbrella points, a stiffer or higher density backup material is required. Cork or rigid non-impregnated cane fiber joint fillers are suitable. Separate materials from the sealant by a nonadhering bondbreaker (polyethylene tape).
- Do not use other caulks or sand as a bottom bed in a joint.
- Do not install when rain is expected before the sealant reaches initial cure (about 12 hours).
- Surfaces in contact with sealant should be fully cured.
- Units of SL 2™ are premeasured, do not use partial units.
- SL 2™ (slope grade) has been successfully tested on grades up to 12% at 120°F (49°C) without any significant run down; for slopes greater than 12%, use NP 2™ sealant (see Form No. SJ-411).
- Make certain the most current version of this data guide is being used. Call Customer Service (1-800-433-9517) to verify the most current version.
- Proper application is the responsibility of the user. Field visits by ChemRex Inc. personnel are for the purpose of making technical recommendations only, and are not to supervise or provide quality control on the job site.
- Do not allow uncured sealants to come into contact with alcohol-based materials or solvents.
- Do not apply polyurethane sealants in the vicinity of uncured silicone sealants.

Technical Data

Compliances

- Federal Specification TT-S-00227E, Type I, Class A
- Corps of Engineers CRD-C-506, Type I, Class A
- ASTM C 920, Type M, Grade P, Class 25, Use T and M
- Canadian Specification CAN/CGSB 19.24-M90, Classification MCG-1-40-B-L, No. 81031
- Canadian approval for use in establishments that handle food
- USDA approval for use in areas that handle meat and poultry

Typical Properties of Cured Sealant

Table 2

Property	SL 2 Value	SL 2 Slope Grade Value	Test Method
Tensile strength, psi	125	145	ASTM D 412
Elongation, %	240	225	ASTM D 412
Shrinkage	Nil	Nil	
Low temperature flexibility, -15°F (-26°C)	Passes	Passes	ASTM C 793
Service temperature range, -40 to 180°F (-40 to 82°C)	Passes	Passes	
Stain and color change (no visible stain)	None	None	ASTM C 510
Extrusion rate and application life	Passes	Passes	ASTM C 603
Rheological (flow) at 40°F (4°C)	Self-leveling	–	ASTM C 639
Hardness at standard conditions	30	30	ASTM C 661
Hardness after heat aging (Maximum shore A 50)	40	20	ASTM C 661
Tack-free time, hours. (Maximum 72 hours)	<24	<24	ASTM C 679
Movement capability, %	± 25	± 25	ASTM C 719
Bond durability on concrete	Passes	Passes	ASTM C 719
Weight loss after heat aging, %	5	5	ASTM C 792
Cracking & chalking after heat aging	None	None	ASTM C 792
Accelerated weathering (250 hours)	Passes	Passes	ASTM C 793
Artificial weathering Xenon arc, 2,000 hours	No surface cracking	No surface cracking	Xenon arc
Adhesion in peel, on concrete	Passes	Passes	ASTM C 794

Test results are averages obtained under laboratory conditions. Reasonable variations can be expected.

Order Information

Packaging

SL 2™

- 1.5 gallon units (5.67 L) containing Part A and Part B
- 3 gallon units (11.34 L) containing Part A and Part B
- For slope grade SL 2™ Fast-Cure see Form No. SN-330

Primer 733 and Primer 766

- 1 pint cans, 12 pints per carton

Coverage rate of primers is approximately 450 linear feet per pint for a 1/2" (13 mm) deep joint.

Shelf life of both products is 12 months when stored in unopened containers under normal conditions.

Colors

40 standard, stocked colors are available. Refer to the Rainbow of Colors® popular palette, Form No. SP-041.

455 standard (non-stocked) colors are also available, and custom matching can be done upon request. Refer to the Rainbow of Colors® book.

Available in pretinted colors:
Precast gray, Limestone

- 1.5 gallon units
- 5.5 gallon units

Minimum order is 1 pallet.

Coverage

Table 3

Joint Depth (inches)	Linear Feet per Gallon Joint Width (inches) 1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"
1/4	308	205	154	122			
3/8				82	68	58	51
1/2					51	44	38

Joint Depth (mm)	Linear Meters per Liter Joint Width (mm) 6	10	13	16	19	22	25
6	24.8	16.5	12.4	9.8			
10				6.6	5.5	4.7	4.1
13					4.1	3.5	3.0

Sonneborn®
Sealant Systems

SONOLASTIC®

PRIMER 733 AND PRIMER 766

Primers for polyurethane sealants

Features

Primer 733
- Solvent-based...
- Adhesion promoting...
- Compatible with Sonneborn polyurethane sealants...

Primer 766
- High solids...
- Adhesion promoting...
- Translucent...

Benefits

Primer 733
- Quick drying
- Improves adhesion to substrates requiring a primer
- Versatility and convenience

Primer 766
- Low VOCs
- Improves adhesion to substrates requiring a primer
- Nonstaining

- Primer 733 is a solvent-based primer for Sonneborn NP 1™, NP 2™, Ultra, SL 1™, and SL 2™ sealants
- Primer 766 is a high-solids primer for Sonneborn NP 1™, NP 2™, SL 1™, SL 2™, and Ultra sealants
- For priming masonry joints and other recommended substrates before the application of Sonneborn polyurethane sealants

How to Apply Primer 733 & Primer 766

Surface Preparation

1 Masonry surfaces must be sound, clean, dry, and free of all paint, grease, oil, dirt, and foreign matter. Surfaces must be fully cured and free of laitance, moisture or form oils.

2 Where necessary, clean joint surfaces by grinding, sandblasting, or mechanical abrading; remove dust, dirt, and loose particles before priming.

3 Metal-edged joint surfaces must be clean, and free of all rust, oil, and dirt.

Application

Primer 733

1 Apply Primer 733 to the cleaned joint surfaces by brushing on a thin, uniform coat. Use primer as is; do not thin. Too much primer may act as a bondbreaker.

2 Allow primer to dry tack free before applying sealant. Dry time will vary depending on temperature and humidity. Sealant must be applied the same day as primer.

Primer 766

1 Apply Primer 766 to the cleaned joint surfaces by brushing on a thin, uniform coat. Use primer as is; do not thin. Too much primer may act as a bondbreaker.

2 Allow primer to dry at least 30 minutes and up to 8 hours before applying sealant. Dry time will vary depending on temperature and humidity. Sealant must be applied the same day as primer.

Clean Up

Primer 733 and Primer 766

Brushes and tools may be cleaned with Reducer 990.

Drying Time

Primer 733

15 minutes at 70°F (21°C) and 70% humidity.

Primer 766

30 minutes to 8 hours, depending on temperature and humidity. (60 minutes at 72°F (22°C), 50% relative humidity). Primer 766 will be tacky to the touch but will not transfer to the finger when dry.

For Best Performance

- Substrates such as copper, stainless, and galvanized typically require the use of a primer; Primer 733 or 766 are acceptable. For Kynar coating, use Primer 733 only. An adhesion test is recommended for any other questionable substrate.
- Make certain the most current version of this data guide is being used; call Customer Service (1-800-433-9517) to verify the most current version.
- Proper application is the responsibility of the user. Field visits by Sonneborn personnel are for the purpose of making technical recommendations only, and are not to supervise or provide quality control on the job site.

Technical Data

Typical Properties

Primer 733	
Flash Point	65°F (18°C)
Viscosity	90 cps
Solids (% by volume)	35

Primer 766	
Flash Point	35 - 40°F (1.7 - 4°C)
Viscosity	90 cps
Solids (% by volume)	59

Test results are averages obtained under laboratory conditions. Reasonable variations can be expected.

Order Information

Packaging

Primer 733 and Primer 766

- One pint cans.

Shelf life is typically 2 years when stored in unopened containers under normal conditions.

Color

Primer 733
Light amber

Primer 766
Translucent (water white)

Coverage

Primer 733 and Primer 766

- 35 - 40 sq. ft. per pint (6.87 - 7.86 m^2/L) or approximately 450 linear feet (137 m) for a 1/2" (13 mm) deep joint.

Danger

Primer 733 contains xylene, propylene glycol methyl ether acetate, carbon tetrachloride, 2,4-toluene diisocyanate, toluene

Risks

Flammable liquid and vapor. Skin, eye and respiratory irritant. May be absorbed through skin. Repeated or prolonged exposure increases the risk of absorption. Potential skin/respiratory sensitizer. Potential skin and/or respiratory sensitizer. Contains material which may cause cancer. Risk of cancer depends on duration and level of exposure. Ingestion may cause irritation. Reports associate repeated or prolonged occupational overexposure to solvents with permanent brain, nervous system, liver and kidney damage. Overexposure during pregnancy may cause harm to unborn fetus. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions

READ MSDS AND TECHNICAL DATA GUIDE BEFORE USING. DO NOT USE UNTIL ALL BYSTANDERS HAVE BEEN WARNED OF PRODUCT HAZARDS. KEEP AWAY FROM HEAT, FLAME AND SOURCES OF IGNITION. Vapors are heavier than air. DO NOT cut or weld on or near empty container. Empty container may contain explosive vapors or hazardous residues. Keep container closed. All label warnings must be observed until container is commercially cleaned or reconditioned. Use only with adequate ventilation. DO NOT get on skin, in eyes, or on clothing. Wash thoroughly after handling. DO NOT breathe vapors. Wear clothing to cover skin. Use impervious gloves, eye protection and if the TLV is exceeded or product is used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection. NOT RECOMMENDED FOR USE IN AREAS WHERE VAPORS CAN ACCUMULATE OR BECOME ENTRAPPED.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product contains materials listed by the state of California as known to cause, birth defects or other reproductive harm.

Warning: Manufactured with carbon tetrachloride, a substance which harms public health and the environment by destroying ozone in the upper atmosphere.

VOC Content

Primer 733 contains 588.3 g/L or 4.91 lbs. per gallon less water and exempt solvents.

Warning

Primer 766 contains xylene, ethyl benzene, methyl ethyl ketone, polyisocyanate, monomeric isocyanate

Risks

Flammable liquid and vapor. Causes skin, eye and respiratory irritation. Potential skin and/or respiratory sensitizer. Reports associate repeated or prolonged occupational overexposure to solvents with injury to eyes, and permanent brain, nervous system, liver and kidney damage. INTENTIONAL MISUSE BY DELIBERATELY INHALING THE CONTENTS MAY BE HARMFUL OR FATAL.

Precautions

READ MSDS AND TECHNICAL DATA GUIDE BEFORE USING. DO NOT USE UNTIL ALL BYSTANDERS HAVE BEEN WARNED OF PRODUCT HAZARDS. KEEP AWAY FROM HEAT, FLAME AND SOURCES OF IGNITION. Keep container closed. Use only with adequate ventilation. Prevent contact with skin, eyes and clothing. Wash thoroughly after handling. DO NOT breathe vapors. DO NOT take internally. Use impervious gloves, eye protection and if the TLV is exceeded or used in a poorly ventilated area, use NIOSH/MSHA approved respiratory protection in accordance with applicable federal, state and local regulations. All label warnings must be observed until container is commercially cleaned or reconditioned.

First Aid

In case of eye contact, flush thoroughly with water for at least 15 minutes. SEEK IMMEDIATE MEDICAL ATTENTION. In case of skin contact, wash affected areas with soap and water. If irritation persists, SEEK MEDICAL ATTENTION. Remove and wash contaminated clothing. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, or if swallowed, SEEK IMMEDIATE MEDICAL ATTENTION.

Refer to Material Safety Data Sheet (MSDS) for further information.

Proposition 65

This product contains materials listed by the state of California as known to cause, birth defects or other reproductive harm.

VOC Content

Primer 766 contains 339 g/L or 2.82 lbs. per gallon less water and exempt solvents.

For medical emergencies only, call ChemTrec (1/800/424-9300).

Customer Service: 1/800/433-9517
Technical Services: 1/800/ChemRex (1/800/243-6739)
Web Site: www.chemrex.com

Limited Warranty Notice

Every reasonable effort is made to apply ChemRex Inc. exacting standards both in the manufacture of our products and in the information which we issue concerning these products and their use. We warrant our products to be of good quality and will replace or, at our election, refund the purchase price of any products proved defective. Satisfactory results depend not only upon quality products, but also upon many factors beyond our control. Therefore, except for such replacement or refund, CHEMREX INC. MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, RESPECTING ITS PRODUCTS, and CHEMREX INC. shall have no other liability with respect thereto. Any claim regarding product defect must be received in writing within one (1) year from the date of shipment. No claim will be considered without such written notice or after the specified time interval. User shall determine the suitability of the products for the intended use and assume all risks and liability in connection therewith. Any authorized change in the printed recommendations concerning the use of our products must bear the signature of the ChemRex Inc. Technical Manager.

Sonneborn®
ChemRex Inc.

889 Valley Park Drive; Shakopee, MN 55379

Manufacturing Plants: Minneapolis, MN; Fort Wayne, IN; Mattawan, MI; Brighton, CO.

Regional Warehouses: DeKalb, IL; Atlanta, GA; Hayward, CA; Fairfield, NJ; Dallas, TX; Ontario, CA; Brighton, CO; Brampton, ONT (Canada).